DOCUMENT RESUME

ED 294 767 SE 049 175

TITLE	U.S. Scientists and Engineers: 1982, Volume 2. Surveys of Science Resources Series.
INSTITUTION	National Science Foundation, Washington, D.C. Div. of Science Resources Studies.
REPORT NO	NSF85-307
PUB DATE	85
NOTE	111p.; Charts, forms, and small print may not reproduce well.
AVAILABLE FROM	National Science Foundation, Forms & Publications Services, 1800 G Street NW, Room 232, Washington, DC 20550 (free while supply lasts).
PUB TYPE	Reports - Research/Technical (143)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	*College Science; Doctoral Degrees; Employment Opportunities; *Employment Patterns; *Engineering Education; *Engineers; Graduate Study; Higher Education; Science Education; *Scientists; *Surveys

ABSTRACT

The data contained in this volume are the product of the National Science Foundations Scientific and Technical Personnel Data System. They represent estimates of demographic, employment, and educational characteristics of scientists and engineers in 1982. These data come from three different sources: (1) The Postcensal Survey of Scientists and Engineers; (2) The New Entrants Survey; and (3) The Survey of Doctoral Scientists and Engineers. Section A contains definitions and statistical procedures for the surveys. Section B contains the results of these surveys in the form of statistical tables. Section C contains data from the 1982 national survey of natural and social scientists and engineers, the 1981 survey of doctoral recipients, and the 1982 survey of science and engineering graduates. (CW)

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u. s. scientists and engineers: 1982

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Suggested Citation

U.S. Scientists and Engineers: 1982, Volume 2 (Detailed Statistical Tables) (NSF 85-307) (Washington, D.C., 1985).

contents

Page

General Notes iv

Section:

A. Technical Notes 1
B. Statistical Tables 7
C. Reproduction of Questionnaires 47

general notes

The data contained in this volume are a product of the National Science Foundation's (NSF's) Scientific and Technical Personnel Data System (STPDS). They represent estimates of the demographic, employment, and educational characteristics of scientists and engineers in 1982. The STPDS is a composite of three surveys, each designed to measure the characteristics of a particular population:

- **The Postcensal Survey of Scientists and Engineers** provides information obtained from almost 95,000 scientists and engineers in 1982. Individuals with scientific, engineering, or related occupations in the 1980 Census of Population constituted the major list from which the Postcensal Survey sample was drawn. Also surveyed were individuals with four or more years of college who were not in a scientific, engineering, or related occupation. The survey was conducted by the Bureau of the Census for NSF.
- **The New Entrants Survey** is designed to measure the number and characteristics of those who earned degrees in science and engineering after the 1980 decennial census was completed. Samples of the graduating classes of 1980 and 1981 were surveyed for NSF by the Institute for Survey Research, Temple University, Philadelphia, Pennsylvania.
- **The Survey of Doctoral Scientists and Engineers** consists of questionnaire responses from a sample of 60,000 scientists and engineers receiving degrees within the years 1938-80. The sample is drawn from a comprehensive roster of Doctoral Scientists and Engineers maintained by the Office of Scientific and Engineering Personnel, National Research Council, National Academy of Sciences. The Survey is conducted by the National Academy of Sciences for NSF.

The method by which these estimates were created differs from that used for past estimates. Mathematica Policy Research, Inc. (MPR), generated the estimates for NSF, utilizing a computer-based model. This model assists NSF by (1) providing additional flexibility in the types of cross tabulations that can be produced, and (2) producing estimates on an annual basis, and for years for which survey data are not available.

Data in this publication (and in volume 1) are the first to incorporate findings of the 1982 Postcensal Survey of Natural and Social Scientists and Engineers. Each decade NSF develops a baseline of data on scientists and engineers by using the Postcensal survey. Since there are some differences in the data concepts and definitions used in each Decennial Census, the data presented for 1982 are not comparable with earlier estimates developed by NSF. Revised historical data for scientists and engineers will be available in the near future.

This report is the second of two volumes of 1982 national estimates of characteristics of U.S. scientists and engineers. The first volume contains data on employment characteristics as well as on selected demographic characteristics such as gender, race, and Hispanic status. This volume contains demographic and employment data, such as citizenship, reason for employment in non-S/E jobs, annual salaries, and Federal support status.

Since the Division of Science Resources Studies (SRS) has just finished reconstituting the STPDS, publications detailing methods and definitions for the national estimates of scientists and engineers used in this report are not yet available. For additional information, please contact the following SRS representative:

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section a

technical notes

definition of scientists and engineers

The tables and figures in this report represent the population of scientists and engineers in the United States. Broadly speaking, a person is considered a scientist or engineer if at least two of the following criteria are met:

- Highest degree is in science (including social science) or engineering;
- Employment in a science or engineering (S/E) occupation;
- Self-identification is as a scientist or engineer on the basis of total education and work experience.

definitions of primary characteristics

field of science or engineering

Data on field of science or engineering are classified as follows:

- **Physical sciences**—chemistry, physics, astronomy, and other physical sciences including metallurgy
- **Mathematical sciences**—mathematics and statistics
- **Environmental sciences**—earth, atmospheric, and oceanographic sciences, including geophysics, geology, seismology, and meteorology
- **Life sciences**—agricultural, biological, and medical sciences (excluding those primarily engaged in patient care)
- **Social sciences**—economics, including agricultural economics, sociology, anthropology, and all other social sciences
- **Psychology**
- **Computer specialties**
- **Engineering**

Data on field of employment are derived from responses to questions that request the name of the specialty most closely related to the respondent's principal employment. The specialty is chosen by the respondents from a list provided in the questionnaire. Doctorate-holders who selected an employment specialty not in science or engineering are assigned to a field of science or engineering based on the field of their degree. For those with less than a doctorate, their professional self-identification is used.

primary work activity

Data presented on the work activities of scientists and engineers represent their *primary* work activities. The data are derived from responses to a series of questions that ask respondents (1) to specify their primary work activity, and (2) to provide a percentage distribution of their work time among 10 to 15 listed activities.

other variables

For information on the various survey instruments used in the report, see the survey questionnaires in section C.

sampling and weighting procedures

The figures in this report are weighted to represent the population of scientists and engineers in the United States. The New Entrants Survey is based on a cluster sample of universities and colleges, so that the weights are reciprocal of the sampling probabilities.

The Roster of Doctorates is a comprehensive list of the population of such people. The Survey of Doctorates utilized a simple random sample, so that the weights are again the reciprocal of the sampling ratio.

The Postcensal Survey was more complex, involving the following major steps:

- The "universe" was the "long forms" from the 1980 Census of Population. The sample was drawn randomly within geographic strata. Housing units (and persons in group quarters) unless located in places with precensus populations below 2,500 persons in which case their chance of selection was 1-in-2. When both sampling rates are taken into account, approximately 19 percent of the housing units were included in the long-form sample.
- The following types of persons were screened out of the long-form sample:

  (a) Those not currently in the labor force *and* who had never worked, or who had last worked before 1975;

  (b) Those who had a nonegineering occupation *and* less than 4 years college;

  (c) Those who had an engineering occupation *and* less than 2 years college;

  (d) Those who were institutionalized; and,

  (e) Those who were under 16 years of age.
- The remaining persons were categorized into strata and substrata. Strata were defined by 3-digit current occupation codes as recorded in the 1980 Census. Substrata were defined by race and sex.
- The stratified sample was then sampled, using a systematic random selection procedure within each stratum/substratum. Overall, there was about a 1-in-38 chance of selection at this stage.
- Questionnaires were mailed to 138,000 persons in 1982.
- Over 97,000 persons completed questionnaires and were further stratified by "in-scope" and "out-of-scope" following NSF definitions, available on request to NSF. In-scope is defined to be a scientist or engineer in 1982.
- The weight of each record with a completed questionnaire that was in-scope was multiplied by a "nonresponse adjustment factor."
- The weight of each in-scope record with a completed questionnaire was also multiplied by a "ratio estimation factor," designed to force the distribution of race and sex in the sample to be the same as among the original sample of scientists and engineers in the 1980 Census.

reliability of scientist and engineer estimates

Since the data on scientists and engineers are derived from sample surveys, the estimates are subject to both sampling and nonsampling errors.

The magnitude of the sampling errors are indicated by the various surveys contained in the following pages and listed below.

Survey	Table
Composite estimates of total scientists and engineers	1
Doctoral scientists and engineers	2
Recent S/E graduates	3,4

The standard error may be used to construct a confidence interval about a given estimate. When the reported standard error is added to or subtracted from an estimate, the resulting range of values reflects an interval within which about 68 percent of all sample estimates surveyed under the same conditions will fall. Intervals reflecting a higher confidence level may be constructed by increasing the number of standard errors around a given estimate. For example, ±2 standard errors defines a 95-percent confidence interval.

calculation of approximate standard errors of the complete tables

For the Postcensal Survey data, approximate standard errors are computed for selected "size of estimate values." The formula used for this purpose is on page 27 of the March 1983 Technical Documentation provided by Census for the 1980 public-use microdata samples (Census of Population and Housing 1980: Public-Use Microdata Samples Technical Documentation/prepared by the Data User Services Division, Bureau of the Census, Washington, D.C., 1983). The unadjusted standard errors of an estimated characteristic total are thus calculated on the assumption that the data for each field arose from a simple random sampling design (i.e., ignoring any gains in precision attributable to the stratified design actually used). For an estimate $\hat{y}$ of a characteristic total in an S/E field, the standard error of the estimate $\hat{y}$ is:

$$\text{s.e.}(\hat{y}) = \text{SQRT}[(1/f) * Y * (1 - \hat{y}/N)],$$

where N is the 1982 size of the S/E field (treated as a known quantity from the 1980 Census but actually updated by the 1982 survey data); f is the sampling rate for the field (relative to the "known" size of the field); and Y is the (weighted) estimate of a characteristic for persons within the specified field.

For the New Entrants Survey data, approximate standard errors were calculated by the Institute for Survey Research of Temple University for the same eight fields for $\hat{y}$ ("size of estimate") values ranging upward from 100 to 10,000 or more, but not exceeding the size of the new entrant group for the field in question.

Assuming that it is proper to to pool the estimate from the Postcensal Survey (for purposes of approximating the standard error of an estimate total of a characteristics within a field), we may calculate a result standard error as:

$$\text{s.e.}(\hat{y}) = \text{SQRT}[(n_1 - 1) * \text{Se}_1^2(\hat{y}) + (n_2 - 1) * \text{Se}_2^2(\hat{y})) / (n_1 + n_2 - 2)]$$

where n_1 is the obtained in-scope size from the Postcensal Survey and n_2 is the obtained in-scope sample size from the New Entrants survey; $\text{s.e.}_1(\hat{y})$ and $\text{s.e.}_2(\hat{y})$ are the corresponding approximate standard errors obtained separately for the two surveys for a characteristic total.

Table 1. Standard errors for estimates of total scientists and engineers

Size of estimate	Total all fields	Physical scientists	Mathe-matical scientists	Computer specialists	Envi-ronmental scientists	Engineers	Life scientists	Psychol-ogists	Social scientists
100	75	80	60	80	60	70	80	90	80
200	100	120	90	120	80	100	120	130	120
500	170	190	150	200	130	160	180	200	190
700	200	230	170	230	160	190	220	240	220
1,000	240	270	210	280	190	230	260	280	260
2,500	380	430	320	430	290	360	400	450	420
5,000	540	610	450	620	410	510	570	630	590
10,000	770	850	600	870	570	720	880	880	810
25,000	1,200	1,300	740	1,300	810	1,100	1,200	1,300	1,200
50,000	1,700	1,700		1,800	920	1,600	1,700	1,600	1,700
75,000	2,100	2,000		2,200	740	1,900	2,000	1,800	2,000
80,000	2,200	2,000		2,200	650	2,000	2,100	1,700	2,000
100,000	2,400	2,100		2,400		2,200	2,200	1,400	2,100
125,000	2,700	2,200		2,600		2,500	2,300		2,200
150,000	2,900	2,100		2,700		2,700	2,400		2,200
175,000	3,100	1,900		2,700		2,900	2,500		2,200
200,000	3,300	1,700		2,800		3,000	2,500		2,000
225,000	3,500	1,200		2,700		3,200	2,500		1,800
250,000	3,700					3,400	3,400		1,400
275,000	3,900					3,500	2,200		
300,000	4,000					3,600	2,000		
400,000	4,600					4,100			
500,000	5,000					4,400			
600,000	5,400					4,600			
700,000	5,800					4,800			
800,000	6,100					5,000			
900,000	6,300					5,100			
1,000,000	6,500					5,000			
1,200,000	6,900					5,000			
1,300,000	7,000					4,800			
1,500,000	7,200					4,400			
2,000,000	7,200								
2,500,000	6,700								
3,000,000	5,400								
3,500,000	2,300								

Source: Mathematica Policy Research, Inc.

Table 2. Standard errors for doctoral scientists and engineers

Total population

Size of estimate	Estimated sampling error	Base of percent	Estimated percent					
			1/99	2/98	5/95	10/90	25/75	50
100	35	500	1.55	2.19	3.40	4.69	6.76	7.81
200	49	1,000	1.10	1.55	2.41	3.31	4.78	5.52
500	78	2,000	.78	1.09	1.70	2.34	3.38	3.90
1,000	110	5,000	.49	.69	1.08	1.48	2.14	2.49
2,000	156	10,000	.35	.49	.76	1.05	1.51	1.75
5,000	245	15,000	.28	.40	.62	.86	1.23	1.43
10,000	344	20,000	.25	.35	.54	.74	1.07	1.23
15,000	419	30,000	.20	.28	.44	.60	.87	1.01
20,000	480	40,000	.17	.24	.38	.52	.76	.87
30,000	579	50,000	.16	.22	.34	.47	.68	.78
40,000	658	75,000	.13	.18	.28	.38	.55	.64
50,000	725	100,000	.11	.15	.24	.33	.48	.55
75,000	852	150,000	.09	.13	.20	.27	.39	.45
100,000	940	200,000	.08	.11	.17	.23	.34	.39
150,000	1,037	250,000	.07	.10	.15	.21	.30	.35
200,000	1,048	275,000	.07	.09	.15	.20	.29	.33
250,000	977	300,000	.06	.09	.14	.19	.28	.32
300,000	801	325,000	.06	.09	.13	.18	.27	.31

Employed women

Size of estimate	Estimated sampling error	Base of percent	Estimated percent					
			1/99	2/98	5/95	10/90	25/75	50
100	20	500	.96	1.36	2.11	2.91	4.19	4.84
200	29	1,000	.68	.96	1.49	2.05	3.97	3.42
500	45	2,000	.48	.68	1.06	1.45	2.10	2.42
1,000	64	5,000	.30	.43	.67	.92	1.33	1.53
2,000	89	10,000	.22	.30	.47	.65	.94	1.08
5,000	135	15,000	.18	.25	.39	.53	.77	.88
10,000	177	20,000	.15	.21	.33	.46	.66	.77
15,000	199	25,000	.14	.19	.30	.41	.59	.68
20,000	206	30,000	.12	.18	.27	.38	.54	.63
30,000	183							

Employed by field

Field	Size of estimate													
	100	200	500	1,000	2,000	5,000	10,000	15,000	20,000	30,000	40,000	50,000	60,000	70,000
Physicial scientists ...	35	55	85	115	165	255	340	400	435	470	450	380		
Mathematical scientistis	30	40	65	90	125	175	180							
Computer specialists .	30	45	70	95	125	150								
Environmental scientists	30	40	65	90	125	175	185							
Engineers	50	65	105	150	210	320	430	500	540	565	520	370		
Life scientists	30	40	65	95	130	205	280	335	370	420	440	435	405	350
Psychologists	35	50	80	115	160	240	315	360	375	345				
Social scientists	40	60	90	130	180	280	375	430	465	475	410			

Source: National Science Foundation.

Table 3. Generalized standard errors for science/engineering bachelor's-degree recipients

Size of estimate	Total all fields	Physical scientists	Mathe-matical scientists	Computer specialists	Envi-ronmental scientists	Engineers	Life scientists	Psychol-ogists	Social scientists
100	160	90	95	80	85	100	140	130	190
200	230	130	130	120	120	140	190	180	270
300	280	160	160	140	150	170	230	230	330
400	320	180	190	160	170	200	270	260	380
500	360	200	210	180	190	220	300	290	430
750	440	250	260	220	230	270	370	360	520
1,000	510	280	290	250	260	310	430	410	600
2,000	720	390	400	350	350	440	600	570	840
3,000	890	460	480	420	400	540	730	700	1,050
4,000	1,000	510	540	470	430	620	840	800	1,200
5,000	1,150	550	580	520	430	690	930	880	1,300
6,000	1,250	580	620	550	420	750	1,000	960	1,450
7,000	1,350	600	650	580	390	810	1,100	1,000	1,550
8,000	1,450	600	670	600	340	860	1,150	1,100	1,650
9,000	1,500	620	680	620	240	910	1,200	1,150	1,750
10,000	1,600	620	680			950	1,250	1,200	1,800
15,000	1,950	480	610			1,150	1,500	1,350	2,200
20,000	2,250					1,300	1,650	1,500	2,450
30,000	2,700					1,500	1,850	1,550	2,850
40,000	3,100					1,600	1,950	1,400	4,000
50,000	3,400					1,700	1,900	1,000	3,250
60,000	3,700					1,700	1,700		3,250
70,000	3,950					1,650	1,350		3,200
80,000	4,150					1,550			3,050
90,000	4,350					1,400			2,800
100,000	4,500					1,150			2,350
200,000	5,400								
300,000	5,050								
400,000	3,250								

Sources: Institute for Survey Research, Temple University and National Science Foundation.

Table 4. Generalized standard errors for science/engineering master's-degree recipients

Size of estimate	Total all fields	Physical scientists	Mathematical scientists	Computer specialists	Environmental scientists	Engineers	Life scientists	Psychologists	Social scientists
100	90	60	90	75	40	65	75	95	110
200	130	80	130	100	55	95	110	130	150
300	150	100	150	130	65	110	130	160	190
400	180	110	180	150	75	130	150	170	210
500	200	120	190	160	80	150	170	210	240
750	240	150	230	190	90	180	200	250	290
1,000	280	160	260	220	100	200	230	280	330
1,500	340	180	300	260	100	250	280	320	390
2,000	390	190	330	290	80	280	310	350	440
3,000	480	160	350	320		340	370	370	510
4,000	550		320	330		380	400	340	550
5,000	610			320		410	410	250	570
6,000	660			280		440	420		570
7,000	710					460	410		550
8,000	750					470	390		510
9,000	790					480	360		440
10,000	820					490	300		
15,000	970					460			
20,000	1,050					300			
30,000	1,150								
40,000	1,200								
50,000	1,100								
60,000	860								

Sources: Institute for Survey Research, Temple University and National Science Foundation.

section b

statistical tables

scientists and engineers, 1982

page

B-1. Scientists and engineers by field, citizenship, and sex/race/ethnic group: 1982 9
B-2. Scientists and engineers by field, sex and full/part-time status: 1982 12
B-3. Scientists and engineers outside the labor force by field, sex, and major reason for not working or seeking work: 1982 15
B-4. Scientists and engineers by field, sex, and major reason for non-S/E employment: 1982 18
B-5. Average annual salaries of scientists and engineers by field, sex/race/ethnic group: 1982 21
B-6. Average total professional income of scientists and engineers by field, sex/race/ethnic group: 1982 23
B-7. Scientists and engineers by field, area of crictical national interest, and type of employer: 1982 25
B-8. Scientists and engineers by field, Federal support status, and type of employer: 1982 36

Table B-1. Scientists and engineers by field, citizenship and sex/race/ethnic group: 1982

Field and citizenship	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Total, all fields	3506000	3068800	437200	3224800	76900	144500	16400	43400	75200
U.S.	3296800	2878900	418000	3075400	71600	98000	16000	35800	64300
Non-U.S.	108300	93800	14500	55500	3000	42700	100	7000	9100
No report	100800	96100	4700	93900	2200	3800	200	700	1800
Total scientists	1519300	1147200	372100	1396600	43200	52700	6900	19900	31200
U.S.	1457800	1099900	358000	1359300	41400	33700	6800	16500	27500
Non-U.S.	46600	35200	11400	24000	1200	18300	100	3100	3300
No report	14800	12100	2700	13300	500	700	(1)	300	400
Physical scientists	249400	223100	26400	232400	4100	9300	800	2800	4400
U.S.	236800	212100	24700	224200	3800	5600	800	2400	3700
Non-U.S.	9700	8200	1400	5300	300	3700	(1)	400	600
No report	3000	2800	200	2900	(1)	(1)	(1)	(1)	200
Mathematical scientists	86300	57900	28300	78500	3800	3100	100	700	1600
U.S.	82300	55300	27100	75800	3600	2300	100	400	1300
Non-U.S.	3300	2100	1100	2200	(1)	800	(1)	300	300
No report	700	500	200	500	200	(1)	(1)	(1)	(1)
Computer specialists	309100	224900	84300	281500	9200	13500	1100	3900	4700
U.S.	297000	215800	81300	275100	8900	8900	1100	3100	4000
Non-U.S.	8900	6700	2300	3700	100	4300	(1)	800	600
No report	3200	2400	700	2600	200	300	(1)	(1)	100
Environmental scientists	95300	81100	14200	88400	600	3800	900	1500	1500
U.S.	91700	77900	13800	86300	600	2600	900	1400	1400
Non-U.S.	2300	2100	200	1000	(1)	1200	(1)	100	100
No report	1200	1100	200	1200	(1)	100	(1)	(1)	(1)
Life scientists	365500	286900	78600	343600	8500	8500	1500	3300	7500
U.S.	353400	277800	75600	335200	8000	5900	1400	2800	6400
Non-U.S.	9800	7400	2400	6300	400	2500	(1)	500	1000
No report	2300	1700	600	2100	100	100	(1)	(1)	100

See footnotes at end of table.

Table B-1. Scientists and engineers by field, citizenship and sex/race/ethnic group: 1982-Continued

Field and citizenship	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Psychologists	149400	88300	61100	140400	5000	1500	1100	1500	2500
U.S.	146600	86600	60000	138100	4900	1200	1100	1300	2400
Non-U.S.	1300	500	800	800	(1)	300	(1)	100	100
No report	1600	1300	300	1500	(1)	(1)	(1)	(1)	(1)
Social scientists	264300	185000	79300	231800	12000	12900	1500	6200	9100
U.S.	250000	174500	75500	224500	11700	7200	1500	5100	8300
Non-U.S.	11400	8200	3200	4800	300	5500	(1)	900	700
No report	2900	2300	600	2500	(1)	200	(1)	200	(1)
Total engineers	1986700	1921600	65100	1828200	33700	91800	9500	23600	44000
U.S.	1839000	1779000	60000	1716100	30200	64300	9200	19200	36800
Non-U.S.	61700	58600	3100	31500	1800	24400	100	3900	5800
No report	86000	84000	2000	80500	1700	3100	200	400	1500
Aeronautical/astronautical	87100	84800	2200	82100	1200	2800	200	900	1600
U.S.	81000	78800	2200	76600	1200	2300	200	800	1500
Non-U.S.	2700	2600	(1)	2200	(1)	400	(1)	100	(1)
No report	3400	3400	(1)	3300	(1)	100	(1)	(1)	(1)
Chemical	119500	112000	7500	108200	1300	8000	200	1800	3200
U.S.	110400	103600	6800	102600	1100	5200	200	1200	2400
Non-U.S.	5800	5200	600	2600	100	2600	(1)	500	800
No report	3300	3200	100	3100	(1)	200	(1)	(1)	(1)
Civil	277600	270600	6900	248900	3900	18700	1100	4900	8500
U.S.	258700	252500	6200	235800	3400	14300	1000	4100	7400
Non-U.S.	8600	8100	500	3500	400	3900	(1)	700	900
No report	10300	10100	200	9600	100	500	(1)	100	200
Electrical/electronics	462200	452000	10200	419800	10500	24800	2300	4900	9400
U.S.	427600	418600	9000	395000	9200	17200	2300	3900	8100
Non-U.S.	14500	13800	700	6200	700	6800	(1)	900	1000
No report	20000	19600	400	18600	600	800	(1)	100	300

See footnotes at end of table.

Table B-1. Scientists and engineers by field, citizenship and sex/race/ethnic group: 1982-Continued

Field and citizenship	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Industrial	123100	117900	5200	116200	2400	3100	400	1000	2900
U.S.	113500	108600	4900	108200	2200	2000	400	700	1900
Non-U.S.	3100	3000	100	1700	(1)	1000	(1)	300	600
No report	6500	6400	200	6200	100	100	(1)	(1)	300
Materials	43000	40900	2100	39500	400	2600	200	300	400
U.S.	39600	37600	2000	37500	400	1300	200	200	400
Non-U.S.	2100	2000	100	900	(1)	1100	(1)	(1)	(1)
No report	1300	1300	(1)	1100	(1)	200	(1)	(1)	(1)
Mechanical	388700	380900	7900	361900	4000	16700	2000	4200	7200
U.S.	361800	354600	7300	341400	3700	11500	1900	3400	6000
Non-U.S.	13200	12800	500	7600	100	4800	(1)	700	1000
No report	13700	13500	100	12900	200	400	100	100	200
Mining	15800	15100	600	15000	(1)	200	400	100	100
U.S.	15200	14500	600	14500	(1)	100	400	(1)	100
Non-U.S.	400	400	(1)	300	(1)	100	(1)	(1)	(1)
No report	200	200	(1)	200	(1)	(1)	(1)	(1)	(1)
Nuclear	19200	18700	500	17600	100	1200	(1)	200	200
U.S.	17700	17300	500	16600	100	900	(1)	200	200
Non-U.S.	500	500	(1)	200	(1)	300	(1)	100	(1)
No report	1000	1000	(1)	900	(1)	(1)	(1)	(1)	(1)
Petroleum	29100	27600	1500	27200	300	500	500	500	1000
U.S.	25900	24500	1400	24700	200	200	500	200	700
Non-U.S.	1300	1200	(1)	700	(1)	300	(1)	200	300
No report	1900	1900	(1)	1800	(1)	(1)	(1)	(1)	(1)
Other engineers	421500	401000	20600	391700	9600	13200	2100	4900	9500
U.S.	387600	368500	19100	363300	8600	9300	1900	4400	7900
Non-U.S.	9500	9000	600	5700	300	3100	(1)	400	1100
No report	24400	23500	900	22700	600	900	200	100	500

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-2. Scientists and engineers by field, sex and full/part-time employment status: 1982

Field and sex	Total Employed	Full-time	Part-time			No report
			Total	Seeking full-time	Not seeking full-time	
Total, all fields	3253000	3107900	134300	24700	109600	10700
Men	2864000	2773700	84400	15400	69000	5900
Women	388900	334200	49900	9300	40600	4800
Total scientists	1405700	1301800	96900	18900	78000	7100
Men	1075100	1022900	49200	9800	39400	3000
Women	330600	278800	47600	9100	38600	4100
Physical scientists	227400	214800	11600	1800	9800	1000
Men	205100	195600	8800	1600	7200	700
Women	22300	19200	2800	200	2600	300
Mathematical scientists	79400	71800	6700	800	5800	900
Men	54000	50900	2700	400	2300	500
Women	25300	20900	4000	400	3600	500
Computer specialists	299000	290000	7900	600	7300	1100
Men	220300	217200	2800	500	2300	300
Women	78700	72800	5100	100	5000	800
Environmental scientists	87200	80900	6000	900	5100	300
Men	74800	70500	4200	600	3600	200
Women	12400	10400	1900	400	1500	100
Life scientists	337100	310600	25200	5100	20100	1300
Men	268500	253300	14700	2800	11800	500
Women	68600	57300	10500	2200	8200	900
Psychologists	138400	119000	18400	3400	15000	1000
Men	83000	77100	5600	800	4700	400
Women	55400	41900	12800	2500	10300	700
Social scientists	237200	214700	21100	6200	14900	1400
Men	169300	158300	10600	3100	7500	400
Women	67900	56400	10500	3200	7400	1000

See footnotes at end of table.

Table B-2. Scientists and engineers by field, sex and full/part-time employment status: 1982-Continued

Field and sex	Total Employed	Full-time	Part-time			No report
			Total	Seeking full-time	Not seeking full-time	
Total engineers	1847200	1806200	37400	5800	31600	3600
Men	1788900	1750800	35200	5600	29600	2900
Women	58300	55400	2200	200	2000	700
Aeronautical/astronautical	80800	79300	1400	100	1300	100
Men	78700	77300	1300	100	1200	100
Women	2100	2000	100	(1)	100	(1)
Chemical	107700	104800	2800	300	2500	200
Men	101600	99100	2500	300	2300	(1)
Women	6100	5700	300	(1)	300	200
Civil	258200	250700	7200	1000	6100	400
Men	252200	244900	6900	1000	5900	300
Women	6100	5800	200	(1)	200	(1)
Electrical/electronics	437700	429400	7400	1100	6300	900
Men	428600	420700	7100	1000	6100	800
Women	9100	8700	300	(1)	200	100
Industrial	113100	111400	1500	700	800	200
Men	108600	107100	1300	700	600	200
Women	4500	4300	100	(1)	100	(1)
Materials	39200	37700	1500	300	1200	(1)
Men	37500	36000	1500	300	1200	(1)
Women	1700	1700	(1)	(1)	(1)	(1)
Mechanical	357900	351200	6000	900	5100	600
Men	350700	344800	5500	900	4600	500
Women	7100	6400	600	(1)	500	100
Mining	14200	13200	900	200	800	100
Men	13700	12700	900	200	800	100
Women	500	400	(1)	(1)	(1)	(1)

See footnotes at end of table.

Table B-2. Scientists and engineers by field, sex and full/part-time employment status: 1982-Continued

Field and sex	Total Employed	Full-time	Part-time			No report
			Total	Seeking full-time	Not seeking full-time	
Nuclear	18200	17800	400	100	300	100
Men	17900	17400	400	100	300	100
Women	400	400	(1)	(1)	(1)	(1)
Petroleum	27700	27100	500	(1)	500	100
Men	26300	25800	400	(1)	400	100
Women	1400	1300	100	(1)	100	(1)
Other engineers	392500	383500	7900	1200	6700	1000
Men	373200	365000	7400	1100	6300	800
Women	19300	18500	600	200	400	200

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-3. Scientists and engineers outside the labor force by field, sex and major reason not working or seeking work: 1982

Field and sex	Total	Retired	Student	Family resp.	Illness	No jobs	Not want work	Other	No report
Total, all fields	178800	109600	37800	10500	6900	1500	5400	6400	600
Men	149000	106100	28500	300	6400	1200	1900	4100	500
Women	29800	3500	9300	10200	600	400	3500	2300	100
Total scientists	75100	29200	26500	8700	1900	1100	3800	3600	300
Men	49400	26100	18500	100	1400	800	600	1600	200
Women	25700	3100	8000	8600	500	300	3200	2100	(1)
Physical scientists	16300	8400	6100	600	700	(1)	(1)	300	100
Men	13400	7900	4700	(1)	600	(1)	(1)	100	100
Women	2900	500	1400	600	100	(1)	(1)	200	(1)
Mathematical scientists	5200	2400	1200	300	300	(1)	500	500	(1)
Men	3000	1600	700	(1)	200	(1)	200	100	(1)
Women	2200	800	500	300	100	(1)	200	300	(1)
Computer specialists	6900	900	1600	2600	300	(1)	1100	300	(1)
Men	2400	900	1000	(1)	300	(1)	200	(1)	(1)
Women	4500	(1)	700	2600	(1)	(1)	900	300	(1)
Environmental scientists	5500	2400	2400	300	(1)	100	100	200	(1)
Men	4400	2400	1700	(1)	(1)	100	(1)	100	(1)
Women	1200	(1)	700	300	(1)	(1)	100	100	(1)
Life scientists	20000	7600	8100	1900	100	200	900	1100	(1)
Men	13700	7300	5500	100	100	100	100	500	(1)
Women	6300	400	2500	1900	(1)	200	800	500	(1)
Psychologists	6500	1100	2400	900	300	400	900	300	(1)
Men	2900	800	1300	(1)	200	300	(1)	200	(1)
Women	3600	300	1200	900	100	100	900	100	(1)
Social scientists	14700	6300	4700	2000	200	300	300	1000	(1)
Men	9600	5200	3600	(1)	100	200	(1)	500	(1)
Women	5100	1100	1100	2000	100	(1)	300	400	(1)

See footnotes at end of table.

Table B-3. Scientists and engineers outside the labor force by field, sex and major reason not working or seeking work: 1982-Continued

Field and sex	Total	Retired	Student	Family resp.	Illness	No jobs	Not want work	Other	No report
Total engineers	103700	80400	11400	1800	5000	400	1600	2800	300
Men	99600	80000	10000	100	4900	400	1300	2600	300
Women	4100	400	1400	1600	100	100	300	200	(1)
Aeronautical/astronautical	4700	4000	400	(1)	200	(1)	(1)	200	(1)
Men	4700	4000	400	(1)	200	(1)	(1)	200	(1)
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Chemical	8500	5100	2200	500	300	100	300	100	100
Men	7500	5100	1800	(1)	300	100	200	100	100
Women	1000	(1)	400	500	(1)	(1)	100	(1)	(1)
Civil	14200	11600	1300	200	300	100	200	400	(1)
Men	13700	11600	1200	(1)	300	100	200	300	(1)
Women	500	(1)	200	200	(1)	(1)	(1)	100	(1)
Electrical/electronics	19100	13700	2400	300	1500	200	300	700	(1)
Men	18500	13700	2200	(1)	1500	200	300	700	(1)
Women	600	(1)	200	300	(1)	(1)	(1)	100	(1)
Industrial	7200	5800	400	(1)	600	(1)	100	200	100
Men	6800	5700	300	(1)	600	(1)	100	100	100
Women	300	(1)	200	(1)	(1)	(1)	(1)	100	(1)
Materials	2800	2100	600	(1)	(1)	(1)	(1)	100	(1)
Men	2700	2100	500	(1)	(1)	(1)	(1)	100	(1)
Women	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Mechanical	23300	19600	1800	300	1100	(1)	200	200	100
Men	22900	19500	1700	100	1000	(1)	200	200	100
Women	400	(1)	200	100	(1)	(1)	(1)	(1)	(1)
Mining	1200	900	(1)	(1)	100	(1)	(1)	100	(1)
Men	1100	800	(1)	(1)	100	(1)	(1)	100	(1)
Women	100	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)

See footnotes at end of table.

Table B-3. Scientists and engineers outside the labor force by field, sex and major reason not working or seeking work: 1982-Continued

Field and sex	Total	Retired	Student	Family resp.	Illness	No jobs	Not want work	Other	No report
Nuclear	500	300	200	(1)	(1)	(1)	(1)	(1)	(1)
Men	400	300	200	(1)	(1)	(1)	(1)	(1)	(1)
Women	100	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Petroleum	1000	800	100	(1)	(1)	(1)	100	100	(1)
Men	1000	800	100	(1)	(1)	(1)	100	100	(1)
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other engineers	21200	16600	1800	400	1000	100	400	800	100
Men	20300	16500	1700	(1)	1000	100	300	700	(1)
Women	900	100	200	400	(1)	(1)	100	(1)	(1)

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-4. Scientists and engineers by field, sex and major reason for non-S/E employment: 1982

Field and sex	Total employed in non-S/E	Preference	Promotion	Better pay	Location preference	Believe S/E not available	Other	No report
Total, all fields	386400	100800	29100	39100	15400	39500	40100	122300
Men	311600	76500	27700	31500	11600	25200	32500	106600
Women	74800	24300	1400	7600	3800	14300	7700	15700
Total scientists	258200	84100	11100	31200	11600	34100	30600	55500
Men	187400	60800	10000	23800	8300	20300	23100	41000
Women	70800	23300	1100	7400	3300	13800	7500	14400
Physical scientists	16900	2900	2100	1700	300	1000	1200	7700
Men	15100	2700	1900	1500	200	900	1200	6800
Women	1700	200	200	100	100	100	100	900
Mathematical scientists	11100	3700	1600	700	(1)	800	2000	2300
Men	8500	2600	1500	500	(1)	600	1600	1700
Women	2600	1100	100	200	(1)	200	400	600
Computer specialists	82900	35000	2600	10400	2700	6400	13200	12600
Men	61600	26100	2400	8000	2200	4700	9200	9000
Women	21300	8900	100	2400	500	1700	4000	3700
Environmental scientists	4400	700	200	300	100	600	300	2300
Men	3700	500	200	300	100	500	300	1900
Women	700	100	(1)	(1)	(1)	200	100	400
Life scientists	39100	7600	2800	4300	1700	8100	4300	10300
Men	29500	5900	2300	3600	1500	4900	3300	8000
Women	9600	1700	500	700	200	3200	1000	2200
Psychologists	32800	9700	400	5100	1100	5700	3400	7400
Men	16700	3900	300	3100	500	2800	2200	3900
Women	16100	5800	100	2000	600	2900	1100	3500
Social scientists	71000	24600	1400	8700	5700	11500	6200	13000
Men	52300	19100	1300	6800	3800	6100	5400	9800
Women	18700	5500	100	1900	1900	5400	800	3200

See footnotes at end of table.

Table B-4. Scientists and engineers by field, sex and major reason for non-S/E employment: 1982-Continued

Field and sex	Total employed in non-S/E	Preference	Promotion	Better pay	Location preference	Believe S/E not available	Other	No report
Total engineers	128200	16800	18100	7900	3800	5400	9500	66800
Men	124200	15700	17700	7700	3300	4900	9300	65600
Women	4000	1100	400	200	500	500	200	1200
Aeronautical/astronautical	3700	200	300	300	200	200	100	2200
Men	3600	200	300	300	200	200	100	2200
Women	100	(1)	(1)	(1)	(1)	(1)	(1)	100
Chemical	6700	1000	1800	300	300	700	300	2400
Men	6300	1000	1800	300	300	600	200	2100
Women	400	100	(1)	(1)	(1)	100	(1)	200
Civil	14500	2100	1000	1000	500	900	1200	7700
Men	14300	2100	1000	1000	400	900	1200	7600
Women	200	(1)	(1)	(1)	100	(1)	(1)	100
Electrical/electronics	24200	2300	2600	1100	1000	900	1800	14400
Men	23200	2000	2300	1100	700	900	1800	14300
Women	1000	300	300	(1)	300	(1)	(1)	100
Industrial	12700	1900	3600	700	500	500	1100	4500
Men	12500	1900	3500	700	400	500	1100	4300
Women	200	(1)	(1)	(1)	(1)	(1)	(1)	200
Materials	3100	200	500	100	100	100	700	1500
Men	3000	200	500	100	100	100	600	1400
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Mechanical	23500	3200	5100	1400	400	800	1400	11100
Men	23100	3100	5100	1400	400	800	1400	10900
Women	400	200	(1)	(1)	(1)	(1)	(1)	200
Mining	1700	200	300	100	(1)	(1)	200	800
Men	1700	200	300	100	(1)	(1)	200	800
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

See footnotes at end of table.

Table B-4. Scientists and engineers by field, sex and major reason for non-S/E employment: 1982-Continued

Field and sex	Total employed in non-S/E	Preference	Promotion	Better pay	Location preference	Believe S/E not available	Other	No report
Nuclear	600	(1)	100	(1)	(1)	(1)	(1)	400
Men	600	(1)	100	(1)	(1)	(1)	(1)	400
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Petroleum	2600	400	400	400	100	(1)	200	1200
Men	2600	400	400	400	100	(1)	200	1200
Women	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other engineers	35100	5100	2300	2500	700	1200	2600	20700
Men	33400	4600	2200	2300	600	800	2500	20300
Women	1700	600	(1)	100	(1)	400	100	400

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-5. Average annual salaries of scientists and engineers by field and sex/race/ethnic group: 1982

Field	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Total, all fields	$34,000	$35,000	$26,300	$34,100	$29,900	$34,200	$34,000	$30,800	$31,400
Total scientists	31,700	33,400	25,800	31,800	28,500	32,400	32,600	28,000	27,600
Physical scientists	34,700	35,500	26,400	34,900	30,100	32,500	42,500	28,600	33,600
Chemists	33,600	34,600	25,500	33,900	29,500	30,400	42,300	24,300	29,800
Physicists/astronomers	37,900	38,100	32,600	37,900	34,600	40,500	43,500	31,000	40,500
Other physical scientists	35,000	35,700	26,300	34,900	33,400	37,100	42,100	35,900	39,800
Mathematical scientists	34,800	37,500	29,100	35,000	31,600	34,500	31,200	29,600	25,400
Mathematicians	35,400	37,700	29,500	35,600	31,800	36,200	31,200	29,700	30,000
Statisticians	32,800	36,700	28,100	33,000	30,900	28,600	(1)	29,200	17,200
Computer specialists	32,200	33,500	28,800	32,300	31,100	32,000	33,000	29,400	30,600
Environmental scientists	36,800	38,000	29,900	36,700	30,700	37,200	46,600	39,300	38,500
Earth scientists	37,600	39,000	30,300	37,500	31,200	38,100	42,200	40,700	39,800
Oceanographers	34,600	36,500	22,300	33,400	28,200	30,000	56,400	(1)	22,400
Atmospheric scientists	32,700	33,100	28,500	32,600	29,400	33,600	(1)	32,100	31,400
Life scientists	28,900	30,400	22,500	29,000	27,700	28,100	30,800	23,900	25,600
Biological scientists	28,200	29,500	22,500	28,300	28,000	27,400	25,800	22,000	24,100
Agricultural scientists	27,500	28,800	17,900	27,400	26,300	28,100	35,700	18,200	27,600
Medical scientists	38,900	42,600	28,200	39,300	27,100	32,000	34,500	39,300	30,700
Psychologists	28,800	31,700	23,900	29,000	25,900	28,400	23,300	23,200	20,400
Social scientists	30,600	33,000	24,300	30,700	26,400	34,300	29,000	27,300	24,100
Economists	34,700	35,900	29,600	34,700	31,100	37,200	28,700	31,600	31,000
Sociologists/anthropologists	24,900	27,000	21,600	24,900	23,800	26,700	28,500	25,600	18,100
Other social scientists	29,200	32,100	22,700	29,500	26,700	29,000	32,000	25,500	25,900
Total engineers	35,800	36,000	29,000	35,900	31,700	35,100	35,000	32,800	33,700
Aeronautical/astronautical	38,500	38,900	27,800	38,700	33,400	36,900	28,300	36,100	34,000
Chemical	39,200	39,700	31,100	39,700	30,900	35,400	26,300	33,600	33,900
Civil	33,500	33,700	26,100	33,600	30,800	33,700	35,500	29,400	30,500

See footnotes at end of table.

Table B-5. Average annual salaries of scientists and engineers by field and sex/race/ethnic group: 1982-Continued

Field	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Electrical/electronics	$36,400	$36,500	$29,800	$36,500	$33,200	$36,200	$35,700	$34,600	$35,600
Industrial	32,700	33,000	26,900	32,900	27,900	31,600	33,200	26,800	32,100
Materials	36,900	37,300	28,600	37,200	32,000	32,400	41,000	30,500	31,600
Mechanical	36,300	36,400	29,300	36,400	32,400	35,400	38,000	33,800	35,800
Mining	37,500	38,000	24,900	37,800	25,500	33,600	28,000	12,100	27,900
Nuclear	38,400	38,600	30,200	38,600	36,100	34,700	(1)	38,300	31,800
Petroleum	44,600	45,200	35,300	44,800	34,600	46,300	32,800	46,400	40,800
Other engineers	34,600	34,900	29,100	34,700	31,000	35,100	33,600	32,900	33,000

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-6. Average total professional income of scientists and engineers by field and sex/race/ethnic group: 1982

Field	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Total, all fields	$31,800	$33,200	$22,100	$31,900	$28,000	$32,100	$33,600	$28,300	$29,100
Total scientists	28,500	30,700	21,600	28,600	26,100	29,200	31,800	24,300	24,000
Physical scientists	31,700	32,800	21,900	31,900	28,300	29,200	42,700	26,700	30,700
Chemists	30,800	32,100	21,500	31,100	27,500	27,300	44,200	22,400	27,800
Physicists/astronomers	34,200	34,800	24,500	34,300	32,300	35,800	38,300	28,800	38,100
Other physical scientists	32,300	33,200	22,500	32,200	35,300	34,300	40,900	36,000	32,000
Mathematical scientists	30,100	33,100	24,300	30,400	28,000	28,000	29,700	20,400	20,600
Mathematicians	30,100	32,800	23,700	30,300	28,600	28,700	29,700	19,700	22,700
Statisticians	30,300	34,000	25,600	30,800	26,500	25,600	(1)	24,900	16,500
Computer specialists	29,700	31,300	25,200	29,800	28,900	29,100	32,800	26,100	29,400
Environmental scientists	33,000	34,700	24,400	32,800	27,900	35,300	49,300	33,900	33,700
Earth scientists	33,400	35,300	24,500	33,200	27,900	35,900	50,500	34,800	34,500
Oceanographers	30,900	32,500	20,800	31,100	27,200	27,100	35,000	2,300	24,400
Atmospheric scientists	31,200	31,800	24,700	31,100	28,200	33,400	(1)	29,800	27,900
Life scientists	25,900	27,800	18,100	25,900	25,800	26,000	30,600	18,700	21,300
Biological scientists	25,000	26,900	17,900	25,100	25,800	25,100	25,200	15,400	20,300
Agricultural scientists	24,600	26,700	13,400	24,500	26,600	24,800	35,600	18,000	19,700
Medical scientists	37,300	40,800	27,500	37,600	23,300	33,100	35,000	41,600	32,800
Psychologists	26,000	29,900	20,200	26,200	22,700	26,300	17,400	20,000	17,600
Social scientists	27,000	29,900	19,900	27,000	24,000	30,300	31,800	24,700	20,900
Economists	31,700	33,000	25,800	31,500	26,100	34,100	39,900	30,600	27,700
Sociologists/anthropologists	21,000	24,100	16,700	20,800	21,900	22,500	23,100	23,100	15,700
Other social scientists	25,600	28,900	18,800	25,800	24,800	23,400	28,000	21,900	20,800
Total engineers	34,400	34,700	25,400	34,600	30,400	33,700	34,800	31,300	32,500
Aeronautical/astronautical	37,700	38,000	25,400	37,800	32,100	36,500	30,600	40,000	35,100
Chemical	36,700	37,300	27,000	37,200	28,000	33,300	25,900	31,400	31,000
Civil	32,500	32,700	23,600	32,600	30,400	33,300	32,500	27,700	29,600

See footnotes at end of table.

Table B-6. Average total professional income of scientists and engineers by field and sex/race/ethnic group: 1982-Continued

Field	Total	Male	Female	White	Black	Asian	Native American	Other	Hispanic
Electrical/electronics	$34,700	$34,900	$25,200	$34,800	$31,600	$34,100	$36,000	$32,200	$34,100
Industrial	32,000	32,300	24,100	32,100	27,800	31,300	32,700	24,100	30,800
Materials	35,500	35,900	25,800	35,900	30,000	30,100	39,500	30,300	29,300
Mechanical	35,100	35,300	24,600	35,200	30,200	34,300	38,200	32,400	34,400
Mining	34,300	34,800	21,100	34,400	25,600	34,700	28,000	21,400	23,800
Nuclear	36,200	36,400	25,400	36,300	34,100	35,300	(1)	33,100	29,100
Petroleum	40,600	41,300	31,000	40,900	33,600	40,400	30,400	41,800	36,600
Other engineers	33,700	34,100	25,900	33,800	29,900	33,500	34,000	32,100	32,800

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Total, all fields	3253000	2186400	391800	284400	168500	143300	78500
Energy	495400	435300	12600	25400	9300	11100	1700
Health	211900	86900	46200	17300	12400	47900	1200
Environment	213500	103100	11900	50000	40600	6400	1600
Teaching	216800	14100	197500	600	800	3200	700
Other educational	61700	8400	43900	1400	2800	4800	300
National defense	422800	293500	5900	96000	1600	24700	1100
Crime	20300	6700	1100	1500	10100	800	100
Food	106400	71100	16400	12900	3400	2400	200
Other mineral resources	34000	26300	1300	4300	1600	300	100
Community development	78300	40100	4000	3500	23400	6800	700
Housing	59900	52300	1500	2200	3000	600	300
None of the above	1164500	974400	38800	62800	54500	30700	3400
Not reported	167500	74200	10800	6600	5100	3600	67200
Total scientists	1405700	712300	341100	152900	83100	100700	15700
Energy	120700	96300	6700	10900	3100	3400	400
Health	173800	59200	44200	15100	10100	44100	1100
Environment	117800	35400	10600	40400	25200	5200	1000
Teaching	187200	7200	175300	500	800	2900	500
Other educational	53700	5500	39800	1100	2400	4600	300
National defense	85000	46100	2900	27500	300	7700	400
Crime	17200	4200	1100	1400	9800	700	(1)
Food	77500	44900	15500	11700	3000	2300	200
Other mineral resources	14900	9600	700	3500	1100	(1)	100
Community development	29700	11800	3600	1800	6300	5800	400
Housing	9700	8200	900	400	200	(1)	(1)
None of the above	477800	368700	31500	35500	19400	21400	1300
Not reported	40700	15200	8300	3100	1500	2400	10100

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Physical scientists	227400	135800	48400	24000	6300	10200	2600
Energy	29900	20900	3800	3300	(1)	1800	100
Health	22000	13900	2300	2600	700	2400	200
Environment	21100	11900	900	3600	3500	1100	(1)
Teaching	31100	400	30300	(1)	(1)	300	100
Other educational	2900	500	2400	(1)	100	(1)	(1)
National defense	24900	12400	1500	8300	(1)	2600	(1)
Crime	1100	(1)	(1)	300	700	(1)	(1)
Food	8400	6800	100	1100	400	(1)	(1)
Other mineral resources	3600	2800	100	700	(1)	(1)	(1)
Community development	600	500	(1)	(1)	(1)	(1)	(1)
Housing	1400	1400	(1)	(1)	(1)	(1)	(1)
None of the above	72800	60200	6100	3700	700	2000	(1)
Not reported	7700	4200	1000	300	100	(1)	2100
Mathematical scientists	79400	26300	37300	10800	1600	2400	1000
Energy	3500	2600	400	300	100	100	(1)
Health	6500	2100	1500	1400	400	1100	(1)
Environment	1300	700	100	200	200	(1)	(1)
Teaching	31800	(1)	31500	200	(1)	(1)	(1)
Other educational	2100	100	1800	(1)	(1)	200	(1)
National defense	11100	5300	200	4800	(1)	400	200
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	1300	600	300	400	(1)	(1)	(1)
Other mineral resources	200	200	(1)	(1)	(1)	(1)	(1)
Community development	800	400	(1)	100	200	100	(1)
Housing	300	300	(1)	(1)	(1)	(1)	(1)
None of the above	19000	13700	1100	3100	700	400	100
Not reported	1500	300	400	100	100	100	600

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Computer specialists	299000	237100	16800	20800	10700	10800	2800
Energy	17400	15500	100	1100	400	300	100
Health	11300	6200	700	1200	300	2900	(1)
Environment	2500	1300	(1)	800	300	100	(1)
Teaching	10000	3600	6000	(1)	100	300	100
Other educational	8100	2400	4700	100	600	300	(1)
National defense	34900	23600	400	8500	200	2000	100
Crime	2600	1200	(1)	200	1200	(1)	(1)
Food	3900	3200	300	400	(1)	(1)	(1)
Other mineral resources	1100	700	200	200	(1)	(1)	(1)
Community development	5900	3600	500	200	1400	300	(1)
Housing	800	800	(1)	(1)	(1)	(1)	(1)
None of the above	193100	170900	3700	7200	6200	4500	600
Not reported	7400	4300	200	700	200	100	1900
Environmental scientists	87200	54200	10800	14900	4200	2100	1000
Energy	45900	40800	1100	2700	1000	200	200
Health	200	100	100	(1)	100	(1)	(1)
Environment	12300	2800	1900	5000	1700	800	100
Teaching	5500	100	5200	100	(1)	(1)	(1)
Other educational	500	200	200	(1)	(1)	(1)	(1)
National defense	3300	600	100	2100	(1)	700	(1)
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	900	400	(1)	400	(1)	(1)	(1)
Other mineral resources	7300	4200	400	1700	900	(1)	100
Community development	800	300	100	100	100	(1)	(1)
Housing	400	400	(1)	(1)	(1)	(1)	(1)
None of the above	7700	3300	1500	2400	300	200	(1)
Not reported	2400	1000	300	400	100	100	600

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Life scientists	337100	110300	109800	57100	33400	23200	3200
Energy	8700	5700	600	1500	800	100	(1)
Health	75700	20200	29400	7400	3800	14300	600
Environment	72600	15700	6200	29400	18200	2500	600
Teaching	43900	700	42000	100	300	800	100
Other educational	6500	500	4500	400	300	700	(1)
National defense	2000	700	100	800	100	300	(1)
Crime	1200	400	(1)	200	600	(1)	(1)
Food	51800	26100	13500	8000	2300	1500	200
Other mineral resources	1700	1000	(1)	600	100	(1)	(1)
Community development	2300	1100	400	100	700	100	(1)
Housing	1600	1400	100	200	(1)	(1)	(1)
None of the above	59900	35000	9500	7400	5500	2300	200
Not reported	9200	2000	3300	1000	600	700	1600
Psychologists	138400	45300	52200	3300	8100	27300	2300
Energy	2400	2400	(1)	(1)	100	(1)	(1)
Health	42200	13400	7200	1000	3200	17000	300
Environment	1300	800	300	(1)	100	(1)	(1)
Teaching	21300	1400	19000	(1)	200	600	(1)
Other educational	22400	1100	18400	200	400	2000	300
National defense	2400	1000	100	600	(1)	700	(1)
Crime	2700	200	200	(1)	2000	300	(1)
Food	2300	1900	100	(1)	100	100	(1)
Other mineral resources	100	100	(1)	(1)	(1)	(1)	(1)
Community development	6100	1700	900	100	900	2400	100
Housing	1000	700	200	(1)	(1)	(1)	(1)
None of the above	29200	19500	4000	1300	900	3400	100
Not reported	5100	1200	1600	(1)	100	800	1400

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Social scientists	237200	103200	65700	22100	18700	24700	2900
Energy	12800	8300	700	2100	800	900	(1)
Health	15800	3400	2900	1400	1600	6400	(1)
Environment	6800	2300	1100	1500	1100	700	100
Teaching	43600	1000	41300	100	100	1000	200
Other educational	11000	700	7800	200	900	1400	(1)
National defense	6500	2600	600	2400	(1)	1000	(1)
Crime	9500	2400	900	600	5200	500	(1)
Food	9000	5800	1100	1400	100	500	(1)
Other mineral resources	1000	600	100	200	100	(1)	(1)
Community development	13200	4300	1500	1100	2900	3000	300
Housing	4300	3200	500	300	200	(1)	(1)
None of the above	96200	66200	5600	10400	5200	8600	200
Not reported	7500	2400	1500	600	400	700	2000
Total engineers	1847200	1474200	50700	131600	85400	42600	62800
Energy	374700	339000	5900	14500	6300	7700	1300
Health	38100	27700	1900	2200	2300	3800	100
Environment	95700	67600	1300	9600	15400	1200	600
Teaching	29600	6900	22100	100	(1)	200	200
Other educational	8100	2900	4100	300	500	200	(1)
National defense	337800	247400	2900	68500	1300	17000	700
Crime	3100	2500	(1)	100	300	100	100
Food	28800	26300	900	1100	300	200	100
Other mineral resources	19100	16800	600	900	600	300	(1)
Community development	48600	28200	400	1700	17000	900	300
Housing	50200	44200	600	1700	2800	600	300
None of the above	686700	605600	7300	27300	35100	9300	2100
Not reported	126800	59000	2600	3500	3600	1100	57000

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Aeronautical/astronautical	80800	59800	2300	13300	400	2700	2400
Energy	3200	2400	200	600	(1)	(1)	(1)
Health	100	(1)	100	(1)	(1)	(1)	(1)
Environment	400	100	(1)	200	(1)	100	(1)
Teaching	1300	100	1100	(1)	(1)	100	(1)
Other educational	300	100	100	(1)	(1)	(1)	(1)
National defense	48000	38800	200	7000	100	2000	100
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	200	200	(1)	(1)	(1)	(1)	(1)
Other mineral resources	100	100	(1)	(1)	(1)	(1)	(1)
Community development	300	100	(1)	100	100	100	(1)
Housing	(1)	(1)	(1)	(1)	(1)	(1)	(1)
None of the above	22100	16100	500	4900	200	300	100
Not reported	4800	1700	200	600	(1)	100	2200
Chemical	107700	97200	2900	2900	800	1600	2300
Energy	37200	34800	700	600	100	800	200
Health	4100	3700	100	100	100	100	(1)
Environment	10600	9700	(1)	400	300	100	100
Teaching	1500	200	1300	(1)	(1)	(1)	(1)
Other educational	200	(1)	200	(1)	(1)	(1)	(1)
National defense	5300	3400	(1)	1500	100	200	100
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	4400	4100	200	(1)	(1)	100	(1)
Other mineral resources	2400	2200	(1)	100	100	(1)	(1)
Community development	200	200	(1)	(1)	(1)	(1)	(1)
Housing	400	400	(1)	(1)	(1)	(1)	(1)
None of the above	36100	35400	300	100	100	300	(1)
Not reported	5400	3200	200	100	(1)	(1)	2000

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Civil	258200	157200	5700	24300	57100	5300	8500
Energy	40500	34800	100	2800	1700	800	300
Health	3600	2100	(1)	200	1100	200	(1)
Environment	24200	14000	300	3600	5900	300	(1)
Teaching	3500	500	2900	(1)	(1)	(1)	100
Other educational	1500	200	800	100	300	100	(1)
National defense	11600	4300	(1)	5400	500	1400	(1)
Crime	200	200	(1)	(1)	(1)	(1)	(1)
Food	1900	1300	(1)	400	200	(1)	100
Other mineral resources	3300	2600	(1)	300	300	100	(1)
Community development	29300	13100	100	1100	14600	300	(1)
Housing	29300	25100	300	1200	2300	300	200
None of the above	91500	52700	600	8500	28000	1600	100
Not reported	17800	6400	500	600	2300	200	7700
Electrical/electronics	437700	354000	13300	38900	4700	12200	14500
Energy	70200	62700	700	3600	1900	1300	100
Health	6300	4900	600	300	(1)	400	100
Environment	5000	3700	200	800	300	100	(1)
Teaching	7700	2100	5300	100	(1)	100	100
Other educational	2900	1300	1400	200	(1)	(1)	(1)
National defense	123400	88500	1400	26100	100	7000	200
Crime	1300	1200	(1)	100	(1)	(1)	(1)
Food	3400	3400	(1)	(1)	(1)	(1)	(1)
Other mineral resources	1100	1000	100	(1)	100	(1)	(1)
Community development	5800	5100	100	(1)	400	100	100
Housing	4800	4300	100	200	(1)	100	100
None of the above	176400	162100	2700	6700	1500	2900	500
Not reported	29300	13800	800	800	400	300	13300

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/ local gov't	Other	No report
Industrial	113100	100200	1900	4400	1100	1700	3900
Energy	10800	10500	100	100	(1)	100	(1)
Health	3500	2300	(1)	(1)	300	800	100
Environment	3700	3300	(1)	300	(1)	(1)	100
Teaching	2600	1300	1200	(1)	(1)	(1)	(1)
Other educational	200	100	100	(1)	(1)	(1)	(1)
National defense	15000	11100	100	3400	100	300	(1)
Crime	400	200	(1)	(1)	100	100	100
Food	3100	3100	(1)	(1)	(1)	(1)	(1)
Other mineral resources	400	400	(1)	(1)	(1)	(1)	(1)
Community development	1300	1000	(1)	(1)	300	(1)	(1)
Housing	1100	1100	(1)	(1)	(1)	(1)	(1)
None of the above	62400	60600	200	500	400	400	200
Not reported	8600	5000	(1)	100	(1)	100	3300
Materials	39200	33400	2300	2000	200	600	700
Energy	7500	6000	800	300	100	200	(1)
Health	700	600	(1)	(1)	(1)	100	(1)
Environment	800	800	(1)	(1)	(1)	(1)	(1)
Teaching	700	(1)	700	(1)	(1)	(1)	(1)
Other educational	100	100	(1)	(1)	(1)	(1)	(1)
National defense	8100	6500	100	1300	(1)	200	100
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	300	300	(1)	(1)	(1)	(1)	(1)
Other mineral resources	2400	2000	200	100	(1)	100	(1)
Community development	200	100	(1)	(1)	100	(1)	(1)
Housing	300	300	(1)	(1)	(1)	(1)	(1)
None of the above	16000	15300	400	200	(1)	100	(1)
Not reported	2200	1400	(1)	100	(1)	(1)	700

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Mechanical	357900	310500	10100	18100	3200	6000	9900
Energy	96700	89500	1600	2600	900	1700	300
Health	7700	6400	200	300	100	600	(1)
Environment	11900	11000	100	200	500	(1)	100
Teaching	6300	900	5400	(1)	(1)	(1)	(1)
Other educational	800	300	500	(1)	(1)	(1)	(1)
National defense	53500	39000	300	11800	300	2000	100
Crime	400	400	(1)	(1)	(1)	(1)	(1)
Food	7700	7500	200	(1)	(1)	(1)	(1)
Other mineral resources	2900	2800	(1)	(1)	100	(1)	(1)
Community development	2700	2400	100	(1)	100	100	(1)
Housing	5700	4800	200	200	300	(1)	100
None of the above	139900	133600	1100	2600	800	1200	500
Not reported	21700	11900	400	400	100	200	8700
Mining	14200	12100	600	600	400	200	200
Energy	7500	7100	100	200	100	(1)	100
Health	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Environment	800	500	100	100	100	100	(1)
Teaching	100	(1)	100	(1)	(1)	(1)	(1)
Other educational	(1)	(1)	(1)	(1)	(1)	(1)	(1)
National defense	300	200	100	100	(1)	(1)	(1)
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	100	100	(1)	(1)	(1)	(1)	(1)
Other mineral resources	3600	3000	100	200	100	100	(1)
Community development	200	(1)	(1)	(1)	100	(1)	(1)
Housing	100	100	(1)	(1)	(1)	(1)	(1)
None of the above	700	600	100	(1)	(1)	(1)	(1)
Not reported	700	400	(1)	100	(1)	(1)	200

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Nuclear	18200	12200	500	3300	200	1400	700
Energy	12700	10200	200	1500	(1)	800	(1)
Health	300	(1)	100	200	(1)	(1)	(1)
Environment	200	(1)	(1)	100	(1)	(1)	(1)
Teaching	100	100	100	(1)	(1)	(1)	(1)
Other educational	(1)	(1)	(1)	(1)	(1)	(1)	(1)
National defense	3300	1300	(1)	1400	(1)	600	(1)
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other mineral resources	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Community development	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Housing	(1)	(1)	(1)	(1)	(1)	(1)	(1)
None of the above	400	200	100	(1)	100	(1)	(1)
Not reported	1200	400	(1)	100	(1)	100	700
Petroleum	27700	24400	200	800	300	400	1600
Energy	24100	22700	100	600	300	200	100
Health	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Environment	200	100	(1)	(1)	100	(1)	(1)
Teaching	100	(1)	100	(1)	(1)	(1)	(1)
Other educational	(1)	(1)	(1)	(1)	(1)	(1)	(1)
National defense	200	(1)	(1)	100	(1)	100	(1)
Crime	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Food	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other mineral resources	300	300	(1)	(1)	(1)	(1)	(1)
Community development	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Housing	100	100	(1)	(1)	(1)	(1)	(1)
None of the above	800	700	(1)	100	(1)	(1)	(1)
Not reported	1900	500	(1)	(1)	(1)	(1)	1400

See footnotes at end of table.

Table B-7. Scientists and engineers by field, area of critical national interest and type of employer: 1982-Continued

Field and area of interest	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Other engineers	392500	313100	10800	22900	17000	10600	18100
Energy	64400	58300	1200	1700	1200	1700	100
Health	11900	7600	900	1000	700	1600	(1)
Environment	37800	24400	700	3900	8100	500	300
Teaching	5700	1800	3900	(1)	(1)	(1)	(1)
Other educational	2200	800	1000	(1)	200	200	(1)
National defense	69100	54400	700	10600	100	3200	100
Crime	800	600	(1)	(1)	200	(1)	(1)
Food	7600	6300	500	700	100	100	(1)
Other mineral resources	2500	2200	200	100	(1)	(1)	(1)
Community development	8600	6200	100	400	1400	400	200
Housing	8400	7900	(1)	100	200	200	100
None of the above	140400	128300	1300	3700	3900	2500	600
Not reported	33100	14300	500	700	800	100	16700

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Total, all fields	3253000	2186400	391800	284400	168500	143300	78500
AID	5600	2000	1700	1000	200	800	(1)
Dept. of Agriculture	81000	8700	20500	42700	7400	1400	200
Dept. of Commerce	23900	5300	2700	12400	2400	1100	(1)
Dept. of Defense	423600	273400	12500	108400	1400	26900	1100
Dept. of Energy	105000	59600	11900	18000	3000	11600	700
Dept. of Education	26900	3000	19300	600	1500	2600	(1)
Dept. of HHS	90600	8200	38600	13600	8600	20800	800
Dept. of HUD	16500	10200	100	1000	4500	600	(1)
Dept. of Interior	42400	6500	3600	22300	8700	1200	100
Dept. of Justice	6200	1600	1000	1700	1200	700	(1)
Dept. of Labor	10300	1800	500	4000	3000	1000	(1)
Dept. of Transportation	71600	27800	1000	9000	31300	2300	200
EPA	58000	27200	2900	9100	16100	2800	(1)
NASA	82400	55800	6200	16500	300	3500	100
NSF	35100	3000	27800	700	300	2900	400
NRC	13300	7600	900	2300	300	2100	100
Other agency	34400	7400	3800	14500	2300	6100	200
Agency unknown	23900	7700	7100	1900	4100	2900	100
No Federal support	1772200	1449500	201200	8700	57100	48900	6700
Support not known	259800	121100	36500	6900	18100	10400	66800
Total scientists	1405700	712300	341100	152900	83100	100700	15700
AID	3700	200	1700	900	200	700	(1)
Dept. of Agriculture	68300	3600	19400	37200	6900	1100	200
Dept. of Commerce	17800	2100	2000	11000	2100	600	(1)
Dept. of Defense	96200	46600	6800	32900	500	9000	400
Dept. of Energy	38600	13300	7500	9800	1800	5800	500
Dept. of Education	21800	1700	16100	300	1300	2500	(1)
Dept. of HHS	82900	5000	36900	12800	8100	19400	800
Dept. of HUD	3700	1200	100	500	1400	500	(1)
Dept. of Interior	31800	3000	3300	17500	7200	800	100
Dept. of Justice	5100	900	900	1400	1200	700	(1)
Dept. of Labor	8800	1300	500	3400	2600	1000	(1)
Dept. of Transportation	9000	3400	500	2000	2100	800	100
EPA	20500	5000	2200	5200	6200	2000	(1)
NASA	17800	9400	3000	4300	100	900	(1)
NSF	28400	1100	23700	600	200	2400	300
NRC	5200	1900	500	1200	200	1300	(1)
Other agency	22700	2300	3400	9900	1400	5400	200
Agency unknown	15800	2500	6700	1000	3100	2400	100
No Federal support	727400	476200	179000	4100	27700	37600	2700
Support not known	92200	29200	31600	3700	9700	8300	9800

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Physical scientists	227400	135800	48400	24000	6300	10200	2600
AID	200	(1)	(1)	100	(1)	(1)	(1)
Dept. of Agriculture	1300	(1)	200	1000	100	(1)	(1)
Dept. of Commerce	1900	100	300	1400	(1)	(1)	(1)
Dept. of Defense	26100	11800	2700	9100	(1)	2500	(1)
Dept. of Energy	21000	6500	4400	5700	300	3800	300
Dept. of Education	500	100	400	(1)	(1)	(1)	(1)
Dept. of HHS	6800	400	2700	2200	400	1000	200
Dept. of HUD	200	200	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	2000	300	300	1200	200	(1)	(1)
Dept. of Justice	200	(1)	(1)	200	(1)	(1)	(1)
Dept. of Labor	500	(1)	(1)	300	(1)	100	(1)
Dept. of Transportation	800	300	(1)	200	300	100	(1)
EPA	6300	1400	200	1200	2400	1100	(1)
NASA	5900	2800	1100	1700	(1)	300	(1)
NSF	8300	400	7500	(1)	100	300	(1)
NRC	2300	700	(1)	500	(1)	1000	(1)
Other agency	2200	200	300	1100	(1)	600	(1)
Agency unknown	1100	400	500	(1)	100	(1)	(1)
No Federal support	132000	102900	25400	600	1700	1300	200
Support not known	12500	5500	3500	300	900	300	1900
Mathematical scientists	79400	26300	37300	10800	1600	2400	1000
AID	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	1100	200	200	700	(1)	(1)	(1)
Dept. of Commerce	1400	200	(1)	1200	(1)	(1)	(1)
Dept. of Defense	11800	5300	700	5100	(1)	500	200
Dept. of Energy	1700	1000	200	300	(1)	200	(1)
Dept. of Education	1200	(1)	1100	(1)	(1)	(1)	(1)
Dept. of HHS	3800	400	1100	1400	200	700	(1)
Dept. of HUD	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Justice	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Labor	700	(1)	(1)	300	300	(1)	(1)
Dept. of Transportation	800	200	100	300	100	100	(1)
EPA	800	300	100	100	100	300	(1)
NASA	1500	800	(1)	600	(1)	100	(1)
NSF	1900	100	1500	(1)	(1)	200	100
NRC	400	300	(1)	(1)	(1)	100	(1)
Other agency	700	(1)	200	300	100	100	(1)
Agency unknown	500	100	400	(1)	(1)	(1)	(1)
No Federal support	47000	18400	26500	400	700	800	(1)
Support not known	6300	900	4500	300	(1)	100	600

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Computer specialists	299000	237100	16800	20800	10700	10800	2800
AID	200	100	(1)	(1)	(1)	100	(1)
Dept. of Agriculture	1500	300	100	900	200	(1)	(1)
Dept. of Commerce	2100	700	(1)	1200	100	100	(1)
Dept. of Defense	34800	22500	800	8800	200	2300	100
Dept. of Energy	4500	2100	300	1100	200	800	100
Dept. of Education	1300	400	500	(1)	100	200	(1)
Dept. of HHS	4600	900	600	1500	1300	300	(1)
Dept. of HUD	700	300	(1)	(1)	200	100	(1)
Dept. of Interior	1300	500	(1)	800	(1)	(1)	(1)
Dept. of Justice	500	100	(1)	300	100	(1)	(1)
Dept. of Labor	1200	300	(1)	100	700	100	(1)
Dept. of Transportation	2800	1300	(1)	800	600	100	(1)
EPA	1100	500	100	300	200	(1)	(1)
NASA	6300	4800	500	900	(1)	200	(1)
NSF	1100	100	800	(1)	(1)	200	(1)
NRC	1000	600	(1)	200	(1)	100	(1)
Other agency	3700	800	100	2300	100	400	(1)
Agency unknown	2600	900	700	200	400	400	(1)
No Federal support	181100	161000	8900	900	4600	5200	500
Support not known	20800	12400	2800	900	1700	1000	2000
Environmental scientists	87200	54200	10800	14900	4200	2100	1000
AID	100	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	2000	200	100	1700	(1)	(1)	(1)
Dept. of Commerce	4500	300	600	3400	(1)	300	(1)
Dept. of Defense	5000	800	800	2600	(1)	800	(1)
Dept. of Energy	3600	1100	1100	600	500	200	(1)
Dept. of Education	100	(1)	100	(1)	(1)	(1)	(1)
Dept. of HHS	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HUD	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	6500	400	500	4900	500	100	(1)
Dept. of Justice	200	100	(1)	(1)	100	(1)	(1)
Dept. of Labor	100	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Transportation	500	200	(1)	(1)	200	(1)	(1)
EPA	1900	500	200	400	800	(1)	(1)
NASA	2100	500	800	700	(1)	100	(1)
NSF	3200	100	2400	200	(1)	300	100
NRC	800	200	200	300	100	(1)	(1)
Other agency	700	100	100	500	(1)	(1)	(1)
Agency unknown	400	100	(1)	100	200	100	(1)
No Federal support	49500	42400	4600	200	1800	200	200
Support not known	4100	1700	1200	300	200	100	600

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Life scientists	337100	110300	109800	57100	33400	23200	3200
AID	1600	(1)	1200	200	100	100	(1)
Dept. of Agriculture	55500	1800	16700	30100	6200	500	200
Dept. of Commerce	4800	200	900	2000	1600	100	(1)
Dept. of Defense	7300	1400	900	4200	100	600	100
Dept. of Energy	4900	1400	1400	900	500	600	100
Dept. of Education	2800	200	2200	100	100	200	(1)
Dept. of HHS	37400	1500	23900	5100	1200	5600	100
Dept. of HUD	300	100	(1)	100	(1)	(1)	(1)
Dept. of Interior	18800	1100	2000	9600	5700	300	100
Dept. of Justice	300	100	(1)	200	(1)	(1)	(1)
Dept. of Labor	400	100	(1)	200	(1)	(1)	(1)
Dept. of Transportation	1000	400	200	100	100	300	(1)
EPA	8600	1500	1400	2900	2400	600	(1)
NASA	1200	300	400	300	100	200	(1)
NSF	10000	200	8200	400	100	1200	(1)
NRC	400	(1)	300	100	(1)	(1)	(1)
Other agency	5600	500	1500	1200	800	1500	200
Agency unknown	4800	500	2700	(1)	1000	600	(1)
No Federal support	134900	72400	41900	800	11200	8000	700
Support not known	19400	4300	8100	800	3200	1200	1700
Psychologists	138400	45300	52200	3300	8100	27300	2300
AID	100	(1)	(1)	(1)	100	(1)	(1)
Dept. of Agriculture	400	100	(1)	(1)	(1)	300	(1)
Dept. of Commerce	300	100	(1)	100	(1)	(1)	(1)
Dept. of Defense	4100	1700	400	1000	(1)	1100	(1)
Dept. of Energy	200	200	(1)	(1)	(1)	(1)	(1)
Dept. of Education	10800	600	8700	(1)	500	900	(1)
Dept. of HHS	16800	1100	5200	900	1900	7700	100
Dept. of HUD	200	100	(1)	(1)	(1)	100	(1)
Dept. of Interior	400	100	200	(1)	(1)	100	(1)
Dept. of Justice	700	100	100	(1)	100	300	(1)
Dept. of Labor	900	200	(1)	(1)	200	400	(1)
Dept. of Transportation	700	300	(1)	200	100	100	(1)
EPA	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NASA	500	200	200	100	(1)	(1)	(1)
NSF	1500	100	1200	(1)	(1)	100	100
NRC	100	100	(1)	(1)	(1)	(1)	(1)
Other agency	2900	300	300	800	(1)	1500	(1)
Agency unknown	2200	300	700	100	500	600	100
No Federal support	69400	26300	28800	(1)	3600	10300	400
Support not known	13100	1500	5800	(1)	700	3900	1300

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Social scientists	237200	103200	65700	22100	18700	24700	2900
AID	1400	100	400	500	(1)	500	(1)
Dept. of Agriculture	6400	1000	2000	2800	200	300	(1)
Dept. of Commerce	2800	400	200	1700	400	100	(1)
Dept. of Defense	7200	3000	600	2100	200	1200	(1)
Dept. of Energy	2700	900	100	1200	200	200	(1)
Dept. of Education	5200	400	3100	100	500	1100	(1)
Dept. of HHS	13500	700	3400	1700	3200	4200	300
Dept. of HUD	2200	400	100	400	1200	200	(1)
Dept. of Interior	2700	500	200	1000	700	200	(1)
Dept. of Justice	3100	500	700	700	800	400	(1)
Dept. of Labor	5100	600	500	2400	1300	300	(1)
Dept. of Transportation	2400	800	200	500	700	100	100
EPA	1700	800	200	300	300	100	(1)
NASA	200	200	(1)	(1)	(1)	(1)	(1)
NSF	2500	100	2100	100	(1)	200	(1)
NRC	200	(1)	(1)	100	100	100	(1)
Other agency	6900	500	1100	3600	400	1300	(1)
Agency unknown	4100	200	1600	500	900	800	(1)
No Federal support	113400	52900	42900	1100	4200	11800	600
Support not known	16100	2800	5700	1100	3000	1700	1800
Total engineers	1847200	1474200	50700	131600	85400	42600	62800
AID	1900	1800	(1)	100	(1)	100	(1)
Dept. of Agriculture	12700	5100	1200	5600	500	400	(1)
Dept. of Commerce	6100	3200	700	1400	300	500	(1)
Dept. of Defense	327500	226900	5700	75500	900	17900	600
Dept. of Energy	66400	46300	4400	8300	1300	5800	300
Dept. of Education	5200	1300	3200	300	200	100	(1)
Dept. of HHS	7700	3200	1700	800	500	1400	100
Dept. of HUD	12900	9100	(1)	600	3100	100	(1)
Dept. of Interior	10600	3500	400	4800	1500	500	(1)
Dept. of Justice	1100	700	100	300	(1)	(1)	(1)
Dept. of Labor	1500	500	(1)	600	400	(1)	(1)
Dept. of Transportation	62700	24400	500	7000	29200	1500	100
EPA	37500	22200	800	3900	9900	700	(1)
NASA	64600	46400	3200	12100	200	2500	100
NSF	6700	1800	4100	100	100	500	(1)
NRC	8100	5700	300	1000	100	800	100
Other agency	11700	5000	400	4600	900	700	(1)
Agency unknown	8100	5200	500	900	1000	500	100
No Federal support	1044800	973300	22200	4600	29500	11200	4000
Support not known	167600	91800	5000	3200	8400	2100	57000

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Aeronautical/astronautical	80800	59800	2300	13300	400	2700	2400
AID	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	200	100	100	(1)	(1)	(1)	(1)
Dept. of Commerce	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Defense	41500	32200	500	6600	100	2100	100
Dept. of Energy	1800	1300	200	200	(1)	100	(1)
Dept. of Education	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of HHS	100	(1)	100	(1)	(1)	(1)	(1)
Dept. of HUD	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Justice	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Transportation	1400	200	(1)	1000	100	100	(1)
EPA	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NASA	18300	11800	700	5200	100	500	100
NSF	100	100	(1)	(1)	(1)	(1)	(1)
NRC	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other agency	400	400	(1)	100	(1)	(1)	(1)
Agency unknown	400	400	(1)	(1)	(1)	(1)	(1)
No Federal support	17200	16200	700	100	200	100	(1)
Support not known	6400	3500	300	300	(1)	100	2200
Chemical	107700	97200	2900	2900	800	1600	2300
AID	200	100	(1)	(1)	(1)	100	(1)
Dept. of Agriculture	200	100	100	(1)	(1)	(1)	(1)
Dept. of Commerce	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Defense	4600	2400	100	1600	(1)	400	(1)
Dept. of Energy	6200	4400	600	500	100	500	100
Dept. of Education	300	(1)	300	100	(1)	(1)	(1)
Dept. of HHS	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of HUD	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	500	200	(1)	200	100	(1)	(1)
Dept. of Justice	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Transportation	200	100	(1)	(1)	(1)	(1)	(1)
EPA	1200	400	(1)	400	200	100	(1)
NASA	700	500	100	(1)	(1)	(1)	(1)
NSF	600	200	400	(1)	(1)	(1)	(1)
NRC	400	200	(1)	(1)	(1)	200	(1)
Other agency	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Agency unknown	100	100	(1)	(1)	(1)	(1)	(1)
No Federal support	79400	76900	1400	100	200	600	200
Support not known	6300	3900	200	(1)	200	(1)	2100

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Civil	258200	157200	5700	24300	57100	5300	8500
AID	400	400	(1)	100	(1)	(1)	(1)
Dept. of Agriculture	5200	1800	100	2900	400	(1)	(1)
Dept. of Commerce	1000	400	(1)	100	200	200	(1)
Dept. of Defense	23800	9900	300	11600	200	1900	(1)
Dept. of Energy	5200	3900	100	900	100	200	100
Dept. of Education	600	100	200	100	200	(1)	(1)
Dept. of HHS	1800	1300	(1)	100	200	200	(1)
Dept. of HUD	8300	5300	(1)	500	2400	(1)	(1)
Dept. of Interior	4300	1300	200	2300	500	(1)	(1)
Dept. of Justice	200	100	100	(1)	(1)	(1)	(1)
Dept. of Labor	300	100	(1)	100	100	(1)	(1)
Dept. of Transportation	42400	13700	200	2600	25300	600	(1)
EPA	14200	10100	200	600	3300	100	(1)
NASA	1500	1200	100	200	(1)	(1)	(1)
NSF	900	300	500	(1)	100	(1)	(1)
NRC	700	400	100	(1)	(1)	(1)	100
Other agency	2800	900	(1)	1300	600	100	(1)
Agency unknown	2100	1100	(1)	200	600	(1)	100
No Federal support	126200	100700	3300	700	19500	1400	600
Support not known	23900	10100	500	400	4900	300	7700
Electrical/electronics	437700	354000	13300	38900	4700	12200	14500
AID	300	300	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	1600	1100	(1)	200	(1)	300	(1)
Dept. of Commerce	2100	900	100	1000	(1)	100	(1)
Dept. of Defense	112000	77200	2100	25600	100	6600	200
Dept. of Energy	12500	7800	500	2600	300	1300	100
Dept. of Education	900	200	600	100	(1)	(1)	(1)
Dept. of HHS	1900	400	800	200	(1)	400	100
Dept. of HUD	900	800	(1)	100	100	(1)	(1)
Dept. of Interior	800	400	(1)	200	(1)	100	(1)
Dept. of Justice	500	300	(1)	200	(1)	(1)	(1)
Dept. of Labor	400	300	(1)	100	(1)	(1)	(1)
Dept. of Transportation	6300	3300	100	2000	600	300	(1)
EPA	1800	1000	100	300	200	200	(1)
NASA	17400	11000	1500	3500	(1)	1300	(1)
NSF	2000	400	1300	(1)	(1)	300	(1)
NRC	1200	900	(1)	200	100	100	(1)
Other agency	2900	1300	(1)	1200	200	200	(1)
Agency unknown	2100	1500	100	200	100	200	(1)
No Federal support	233800	219800	5800	2000	2600	2900	800
Support not known	39000	21900	1600	1100	700	400	13300

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Industrial	113100	100200	1900	4400	1100	1700	3900
AID	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Commerce	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Defense	14600	10600	400	3300	100	300	(1)
Dept. of Energy	1200	900	100	100	(1)	100	(1)
Dept. of Education	100	(1)	100	(1)	(1)	(1)	(1)
Dept. of HHS	500	200	(1)	(1)	100	200	(1)
Dept. of HUD	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Justice	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	100	(1)	(1)	(1)	100	(1)	(1)
Dept. of Transportation	600	600	(1)	100	(1)	(1)	(1)
EPA	200	200	(1)	(1)	(1)	(1)	(1)
NASA	2000	2000	(1)	(1)	(1)	(1)	(1)
NSF	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NRC	200	200	(1)	(1)	(1)	(1)	100
Other agency	200	100	(1)	100	(1)	100	(1)
Agency unknown	400	100	(1)	100	(1)	100	(1)
No Federal support	78700	75900	1000	200	500	800	300
Support not known	11700	7600	(1)	200	200	200	3400
Materials	39200	33400	2300	2000	200	600	700
AID	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Commerce	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Defense	7400	5400	600	1200	(1)	100	100
Dept. of Energy	3200	1700	700	500	100	200	(1)
Dept. of Education	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HHS	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HUD	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	200	100	(1)	100	(1)	(1)	(1)
Dept. of Justice	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Transportation	100	100	(1)	(1)	(1)	(1)	(1)
EPA	100	100	(1)	(1)	(1)	(1)	(1)
NASA	2100	1900	100	200	(1)	(1)	(1)
NSF	700	(1)	600	(1)	(1)	100	(1)
NRC	200	100	(1)	100	(1)	(1)	(1)
Other agency	400	100	200	200	(1)	(1)	(1)
Agency unknown	200	100	(1)	(1)	100	(1)	(1)
No Federal support	22800	22200	500	(1)	(1)	100	(1)
Support not known	2900	1800	200	(1)	100	100	700

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Mechanical	357900	310500	10100	18100	3200	6000	9900
AID	300	300	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	700	400	(1)	200	(1)	100	(1)
Dept. of Commerce	1000	700	100	100	(1)	100	(1)
Dept. of Defense	52700	37100	900	12200	200	2100	100
Dept. of Energy	15800	11700	900	1100	300	1700	100
Dept. of Education	1800	500	1200	100	(1)	(1)	(1)
Dept. of HHS	1500	700	400	300	(1)	(1)	(1)
Dept. of HUD	800	800	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	900	300	(1)	300	100	100	(1)
Dept. of Justice	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Transportation	3100	2500	100	300	200	(1)	(1)
EPA	2400	1700	100	200	400	(1)	(1)
NASA	11900	9300	600	1700	(1)	400	(1)
NSF	1000	300	700	(1)	(1)	(1)	(1)
NRC	1800	1500	100	100	(1)	200	(1)
Other agency	1500	700	(1)	600	(1)	100	(1)
Agency unknown	1100	700	100	200	(1)	100	(1)
No Federal support	228600	219100	5300	600	1200	1600	800
Support not known	30800	19300	900	700	800	400	8800
Mining	14200	12100	600	600	400	200	200
AID	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Commerce	100	(1)	(1)	(1)	100	(1)	(1)
Dept. of Defense	300	100	100	100	(1)	(1)	(1)
Dept. of Energy	300	300	(1)	(1)	(1)	(1)	(1)
Dept. of Education	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HHS	100	100	(1)	(1)	(1)	(1)	(1)
Dept. of HUD	200	100	(1)	(1)	(1)	100	(1)
Dept. of Interior	500	100	(1)	300	(1)	100	(1)
Dept. of Justice	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Transportation	400	200	(1)	(1)	200	(1)	(1)
EPA	100	(1)	(1)	(1)	(1)	100	(1)
NASA	100	100	(1)	(1)	(1)	(1)	(1)
NSF	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NRC	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other agency	100	(1)	(1)	100	(1)	(1)	(1)
Agency unknown	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No Federal support	9900	9300	300	(1)	100	100	100
Support not known	800	600	(1)	(1)	(1)	(1)	100

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Nuclear	18200	12200	500	3300	200	1400	700
AID	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Commerce	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Defense	3400	1300	(1)	1400	(1)	700	(1)
Dept. of Energy	5200	3300	300	1000	(1)	600	(1)
Dept. of Education	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HHS	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HUD	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	100	(1)	(1)	(1)	100	(1)	(1)
Dept. of Justice	100	(1)	(1)	100	(1)	(1)	(1)
Dept. of Labor	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Transportation	200	(1)	(1)	200	(1)	(1)	(1)
EPA	200	100	(1)	100	(1)	(1)	(1)
NASA	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NSF	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NRC	2300	1500	100	600	(1)	100	(1)
Other agency	200	100	(1)	100	(1)	(1)	(1)
Agency unknown	100	(1)	(1)	(1)	(1)	(1)	(1)
No Federal support	7200	6700	100	200	(1)	200	(1)
Support not known	1200	500	(1)	100	(1)	(1)	700
Petroleum	27700	24400	200	800	300	400	1600
AID	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Commerce	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Defense	300	(1)	(1)	100	(1)	100	(1)
Dept. of Energy	700	200	100	300	(1)	(1)	(1)
Dept. of Education	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HHS	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of HUD	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Interior	300	(1)	(1)	300	(1)	(1)	(1)
Dept. of Justice	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Labor	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dept. of Transportation	(1)	(1)	(1)	(1)	(1)	(1)	(1)
EPA	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NASA	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NSF	(1)	(1)	(1)	(1)	(1)	(1)	(1)
NRC	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Other agency	100	(1)	(1)	100	(1)	(1)	(1)
Agency unknown	(1)	(1)	(1)	(1)	(1)	(1)	(1)
No Federal support	19900	19200	100	(1)	300	200	100
Support not known	2500	1000	(1)	(1)	(1)	(1)	1400

See footnotes at end of table.

Table B-8. Scientists and engineers by field, Federal support status and type of employer: 1982-Continued

Field and agency of support	Total	Business and industry	Educational insts.	Federal gov't	State/local gov't	Other	No report
Other engineers	392500	313100	10800	22900	17000	10600	18100
AID	600	600	(1)	(1)	(1)	(1)	(1)
Dept. of Agriculture	4600	1500	900	2100	100	(1)	(1)
Dept. of Commerce	1800	1100	400	200	(1)	100	(1)
Dept. of Defense	66900	50500	600	11900	300	3500	100
Dept. of Energy	14400	10900	1000	1000	400	1000	(1)
Dept. of Education	1500	400	900	(1)	(1)	100	(1)
Dept. of HHS	1700	500	400	200	100	500	(1)
Dept. of HUD	2500	2000	(1)	(1)	600	(1)	(1)
Dept. of Interior	3000	1000	200	900	700	100	(1)
Dept. of Justice	200	100	(1)	100	(1)	(1)	(1)
Dept. of Labor	400	100	(1)	200	100	(1)	(1)
Dept. of Transportation	7900	3700	(1)	700	2900	500	100
EPA	17200	8500	400	2300	5800	200	(1)
NASA	10500	8600	300	1300	(1)	300	(1)
NSF	1400	600	600	100	(1)	100	(1)
NRC	1100	800	(1)	100	(1)	300	(1)
Other agency	3000	1500	200	1000	100	200	(1)
Agency unknown	1700	1100	100	100	200	100	(1)
No Federal support	221000	207300	3700	800	4800	3300	1100
Support not known	42100	21700	1300	400	1600	500	16700

(1) Too few cases to estimate.

NOTE: Detail may not add to total because of rounding.
SOURCE: National Science Foundation.

section c

reproduction of survey questionnaires

page

1982 National Survey of Natural and Social Scientists and Engineers 49
1981 Survey of Doctorate Recipients 58
1982 Survey of Science and Engineering Graduates 62

O.M.B. No. 3145-0071: Approval Expires December 31, 1983

NOTICE – Your report to the Census Bureau is confidential by law (title 13, U.S. Code). It may be seen only by sworn Census employees and may be used only for statistical purposes.

FORM **SSE-20** (2 22 82)

U.S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

1982 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS

PLEASE COMPLETE AND RETURN TO

Bureau of the Census
ATTN: Current Projects Branch
1201 East Tenth Street
Jeffersonville, Indiana 47132

Please read instructions carefully before answering questions.

Answer as accurately as you can by printing your reply clearly or by entering an "X" in the box next to the appropriate reply.

If the instructions for a question direct you to enter a code and description from a list, please refer to the Reference List Guide that is enclosed.

001 1

IF YOU HAVE MOVED, or if there are errors in the address label above, please enter the correct information about your name and current residence below.

Name

Number and street

City or town | County 002

State or foreign country 003 | ZIP code

FROM THE DIRECTOR
BUREAU OF THE CENSUS

One of our Nation's most valued resources is the highly trained and educated personnel in scientific, engineering, and other fields. Such individuals have provided much of the creativity and initiative that have contributed to United States development. It is essential that industry, academe, and government have current information about this valuable resource in order to plan for its effective development and use.

The National Science Foundation, the government agency responsible for the collection and dissemination of information concerning the Nation's science and engineering personnel, has asked the Bureau of the Census to conduct a survey of persons from a variety of occupations who have attained certain levels of education. The purpose of this survey is to obtain information about their education and training, employment and career development, and the relationship of their training to subsequent occupation. This information can be utilized in planning and analysis by private industry, industrial and trade associations, federal and state government agencies, and colleges and universities. For this survey to yield representative results, it is important that each person contacted in the survey complete and return this questionnaire.

Beginning on page 2, please answer the questions and return your questionnaire in the enclosed addressed envelope. For some questions, you are asked to enter a code and description from Reference List A, B, or C. This Reference List Guide is enclosed.

This information is being collected under the authority of the National Science Foundation Act of 1950, as amended (42 USC 1862). The information you provide is confidential and may be seen only by sworn Census Bureau employees. The information may be used only for statistical purposes and cannot be given to any other government agency, private concern, or individual. These data will be released only in the form of statistical summaries which will preclude the identification of any survey participant. Your response is entirely voluntary, and your failure to provide some or all of the requested information will in no way adversely affect you.

The National Science Foundation and the Census Bureau appreciate your cooperation.

Sincerely,

Bruce Chapman

BRUCE CHAPMAN

Enclosures

Part I — SOME FACTS ABOUT YOURSELF

1. Sex

101 1 ☐ Male
2 ☐ Female

2. Are you —

102 1 ☐ American Indian or Alaskan Native
2 ☐ Asian or Pacific Islander
3 ☐ Black
4 ☐ White
5 ☐ Other — *Specify* _____

3. Are you of Spanish/Hispanic origin or descent?

103 2 ☐ No
1 ☐ Yes →
104 1 ☐ Mexican-American
2 ☐ Puerto Rican
3 ☐ Other Hispanic

4. In what month and year were you born?

105 ☐☐ Month *(Enter two-digit month code in boxes, e.g. "01" for January, etc.)*

106 1 9 ☐☐ Year

5. As of May 9, 1982, what was your marital status?

107 1 ☐ Married
2 ☐ Widowed
3 ☐ Separated
4 ☐ Divorced
5 ☐ Never married

6. Did you have any children living with you as of May 9, 1982, who were — —

a. 6—17 years of age?

108 1 ☐ Yes
2 ☐ No

b. Under 6 years of age?

109 1 ☐ Yes
2 ☐ No

7a. Are you a U.S. citizen?

110 1 ☐ Yes — *SKIP to 8a*
2 ☐ No, non-U.S. citizen, immigrant (permanent resident) } *GO to b*
3 ☐ No, non-U.S. citizen, non-immigrant (temporary resident) }

b. If non-U.S. citizen, of which country are you a citizen?

111 ☐☐ *Specify country* _____

8a. Are you physically handicapped?

112 1 ☐ Yes — *GO to b*
2 ☐ No — *SKIP to 9*

b. What is the nature of your handicap(s)?

Mark (X) all that apply.

113 1 ☐ Visual
2 ☐ Auditory
3 ☐ Ambulatory
4 ☐ Other — *Specify* _____

Part II — EDUCATION AND TRAINING

9. How many years of formal education have you COMPLETED beyond high school?

114 _____ Years — *GO to 10*
0 ☐ None — *SKIP to 12a*

10. Beginning with the most recent and working back, list each institution beyond the high school level from which you have obtained or are obtaining formal training leading to an academic degree. Designate degrees by abbreviations, for example, AA, BS, BA, MS, Ph.D., LLB, MD, etc. Use a separate line for each degree granted or worked for, or for any change in major field of specialized study. Refer to List A on the enclosed Reference List Guide for the code numbers of major fields. Do NOT include correspondence courses, on-the-job training, apprenticeship, or training at an employer's training school; training of these types should be reported in question 12a. If you need more space, attach a separate sheet of paper and give the same type of information for each additional school.

	College, university, or other post high school institution *Name, city, and State or foreign country*	Type of degree worked for, if any (AA, BS, etc.), or none	Year degree awarded	Major field *Enter code and description from Reference List A*	
				Code	Description
MOST RECENT	115	116 OR 0 ☐ None	117 1 9 ☐☐ OR 0 ☐ None	118 ☐☐	
SECOND-TO-LAST	119	120 OR 0 ☐ None	121 1 9 ☐☐ OR 0 ☐ None	122 ☐☐	
THIRD-TO-LAST	123	124 OR 0 ☐ None	125 1 9 ☐☐ OR 0 ☐ None	126 ☐☐	
FOURTH-TO-LAST	127	128 OR 0 ☐ None	129 1 9 ☐☐ OR 0 ☐ None	130 ☐☐	

Part II — EDUCATION AND TRAINING — Continued

11. If you are a student attending a college or university, mark your status.

132 1 ☐ Student, full-time
2 ☐ Student, part-time
3 ☐ Not currently a student

12a. Which of these kinds of training did you participate in during 1980 or 1981?

Mark (X) the appropriate year for each type of training you received.

1980	1981	KIND OF TRAINING
133 1 ☐	134 1 ☐	Military training applicable to present civilian occupation
2 ☐	2 ☐	Extension or correspondence courses applicable to present civilian occupation
3 ☐	3 ☐	Courses at employer's training facility
4 ☐	4 ☐	Courses at adult education center
5 ☐	5 ☐	Courses presented in conjunction with professional meetings
6 ☐	6 ☐	Courses presented by professional training organizations (commercial or non-profit)
7 ☐	7 ☐	Other training
0 ☐	0 ☐	None

b. Were continuing education units (CEU's) or other forms of recognized credit units earned as a result of the above training (in item 12a)?

1980	1981
135 1 ☐ Yes	136 1 ☐ Yes
2 ☐ No	2 ☐ No

Part III — EMPLOYMENT STATUS

13. During the week of May 9, 1982, were you —

137 1 ☐ Working full time (35 hours or more per week in at least one position) — *SKIP to 17a*
2 ☐ Working part time — *GO to 14*
3 ☐ Not working, but seeking work — *SKIP to Part IV*
4 ☐ Not working and not seeking work — *SKIP to 15*

14. Were you seeking full-time work?

138 1 ☐ Yes
2 ☐ No
} *SKIP to 17a*

15. Did you look for work at any time during the 3 weeks PRIOR to the week of May 9, 1982?

139 1 ☐ Yes
2 ☐ No

16. What was the MAIN reason you were not working or not seeking work during the week of May 9, 1982?

Mark (X) only one box.

140 1 ☐ On layoff from a job
2 ☐ On vacation or otherwise temporarily absent from a job for health or personal reasons
} *GO to 17a*

3 ☐ Retired
4 ☐ Student
5 ☐ Family responsibilities
6 ☐ Chronic illness or permanent disability
7 ☐ Could not find work or believed no jobs available in my particular field
8 ☐ Did not want to work
9 ☐ New job to begin within 30 days
10 ☐ Waiting for school to begin
11 ☐ Other — *Specify* _____
} *SKIP to Part IV*

17a. During the week of May 9, 1982, were you working at (or on layoff from) a position related to the natural sciences, social sciences, or engineering?

141 1 ☐ Yes — *SKIP to Part IV*
2 ☐ No — *GO to b*

b. What was the most important reason for taking this nonscience or nonengineering position?

Mark (X) only one box.

142 1 ☐ Preferred nonscience or nonengineering position
2 ☐ Promoted out of science or engineering position
3 ☐ Pay was better in nonscience or nonengineering position
4 ☐ Locational preference
5 ☐ Science or engineering position not available
6 ☐ Other — *Specify* _____

Part IV — EMPLOYMENT PROFILE

143 0 ☐ If you were never employed nor self-employed during or at any time prior to the week of May 9, 1982, mark the box and skip to item 30 on page 6.

In this part of the questionnaire, we are asking questions about your job held during the week of May 9, 1982, or, if you were not employed at that time, about your most recent job prior to May 9. List any employment, including a military service job, not just a scientific or technical job. If you had more than one regular job the week of May 9, record the one which you consider to be your principal employment.

18a. For whom did you work? *Enter name of company, business organization, government agency, or other employer (or self-employed).*

_____

b. Location where you were employed. *Enter city, county and State where company, business or other employer is located.*

City or town _____

County 144 _____ State or foreign country 145 _____

CONTINUE WITH PAGE 4

Part IV — EMPLOYMENT PROFILE — Continued

19. What kind of business was this?

Enter code and description from Reference List B. If the organization conducted its activities at different locations, enter the description of the activity at the location where you were employed.

146 Code ___ Description from Reference List B ___

20. What kind of work were you doing?

Enter the code and description of your occupation from Reference List C.

147 Code ___ Description from Reference List C ___

21a. Which category best describes the type of organization of your principal employment?

Mark (X) only one box.

148
- 01 ☐ Self-employed
- 02 ☐ Business or industry
- 03 ☐ Junior college, 2-year college, technical institute
- 04 ☐ Medical school
- 05 ☐ 4-year college or university, other than medical school
- 06 ☐ Elementary or secondary school system
- 07 ☐ Hospital or clinic
- 08 ☐ Non-profit organization, other than hospital, clinic, or educational institution
- 09 ☐ U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA
- 10 ☐ U.S. Government, civilian employee
- 11 ☐ State government
- 12 ☐ Local or other government — *Specify* ( )
- 13 ☐ International agency
- 14 ☐ Other — *Specify* ( )

b. If you had more than one job during the week of May 9, 1982, enter the category code from above that is most appropriate for your SECOND job.

Enter the appropriate code (01 – 14) from item 21a above.

150 ☐☐ Second job

0 ☐ Did not have a second job the week of May 9, 1982

22. From the activities listed below, select your primary and secondary work activities for your principal job as reported in item 18, in terms of time devoted for a typical week. *Enter the appropriate code (01 – 18) for each in the specified box.*

151 ☐☐ Primary work activity

152 ☐☐ Secondary work activity

PLEASE NOTE:

Basic research is study directed toward gaining scientific knowledge primarily for its own sake.
Applied research is study directed toward gaining scientific knowledge in an effort to meet a recognized need.
Development is direction of the knowledge gained from research toward production of useful materials, devices, systems, and methods.

Code
- 01 – Management or administration of research and development
- 02 – Management or administration of other than research and development
- 03 – Teaching and training – preparing and teaching courses, guiding and counseling students or trainees
- 04 – Basic research
- 05 – Applied research
- 06 – Development – product, process, and technical development
- 07 – Report and technical writing, editing, information retrieval
- 08 – Clinical diagnosis

Code
- 09 – Design of equipment, processes, models
- 10 – Quality control, testing, evaluation, or inspection
- 11 – Operations – production, maintenance, construction, installation
- 12 – Distribution – sales, traffic, purchasing, customer and public relations
- 13 – Statistical work – survey work, forecasting, statistical analysis
- 14 – Consulting
- 15 – Computer applications
- 16 – Other activities — *Specify* ___

23. During a typical week in your principal job reported in item 18, what percent of working time did you devote to each of the following activities?

Entries should total 100%.

153 ___ % Management or administration
154 ___ % Basic research
155 ___ % Applied research
156 ___ % Development
157 ___ % Teaching
158 ___ % Operations, production
159 ___ % Other
100%

24a. For your principal job reported in item 18, what basic annual salary do you CURRENTLY earn? *Exclude bonuses, overtime, summer teaching, or other payments for secondary jobs.*

160 $ ___ 00 Per year — *GO to b*

161 0 ☐ Not currently employed at that job — *SKIP to 25*

b. If academically employed in your principal job, mark whether your salary is for —

163
- 1 ☐ 9 – 10 months
- 2 ☐ 11 – 12 months

25. What was your total professional income in 1981 including basic annual salary, bonuses, overtime, summer teaching, consulting fees, etc.?

164 $ ___ 00 In 1981

0 ☐ None

CONTINUE WITH PAGES 5 AND 6

Part IV — EMPLOYMENT PROFILE — Continued

26. What was your basic annual salary in 1981 for the principal job you held longest, excluding bonuses, overtime, summer teaching, consulting fees, etc.?

168 $ _____ . 00

0 ☐ None

27a. During the week of May 9, 1982, was any of your work at your principal job supported by U.S. Government funds?

168

1 ☐ Yes — *GO to b*
2 ☐ No
3 ☐ Don't know } *SKIP to 28*

b. Which of these agencies or departments were supporting your work?

Mark (X) all that apply.

167 *

1 ☐ AID (Agency for International Development)
2 ☐ Department of Agriculture
3 ☐ Department of Commerce
4 ☐ Department of Defense
5 ☐ Department of Energy
6 ☐ Department of Education (NIE, OE, NCES)
7 ☐ Department of Health and Human Services (Old HEW)
8 ☐ Department of Housing and Urban Development
9 ☐ Department of the Interior
10 ☐ Department of Justice
11 ☐ Department of Labor
12 ☐ Department of Transportation
13 ☐ EPA (Environmental Protection Agency)
14 ☐ NASA (National Aeronautics and Space Administration)
15 ☐ NSF (National Science Foundation)
16 ☐ Nuclear Regulatory Commission
17 ☐ Other — *Specify* _____
18 ☐ Don't know source agency

28. From this list of selected areas of national interest, indicate the ONE area to which you devote(d) the MOST professional time during a typical week at the job reported in item 18.

169

1 ☐ Energy and fuel — *GO to 29a*
2 ☐ Health
3 ☐ Environment
Education
4 ☐ Teaching
5 ☐ Other education
6 ☐ National defense
7 ☐ Crime prevention and control
8 ☐ Food production and technology
9 ☐ Other mineral resources
10 ☐ Community development and service
11 ☐ Housing (planning, design, construction)
12 ☐ None of the above } *SKIP to 30*

29a. Please mark your best estimate of the percent of your professional time that you devote(d) to energy and fuel during a typical week.

169

1 ☐ 100 percent
2 ☐ 75 to 99 percent
3 ☐ 50 to 74 percent
4 ☐ 25 to 49 percent
5 ☐ 24 percent or less

b. From this list, mark the ONE energy source that involves(d) the LARGEST proportion of your energy-related work during a typical week.

170

1 ☐ Coal and coal products
2 ☐ Petroleum (including oil shale and tar sands) or natural gas
3 ☐ Fission
4 ☐ Fusion
5 ☐ Hydroenergy
6 ☐ Direct solar (including space and water heating, thermal, electric)
7 ☐ Indirect solar (winds, tides, biomass, etc.)
8 ☐ Geothermal
9 ☐ Other — *Specify* _____

c. Please read this list of energy-related activities and mark the item(s) that best describe the activity(ies) in which you are (were) engaged during a typical week.

Mark (X) all that apply.

171 *

01 ☐ Exploration
02 ☐ Extraction (gas, oil, mining)
03 ☐ Manufacture of energy-related components or products
04 ☐ Fuel processing (including refining and enriching)
05 ☐ Electric power generation
06 ☐ Transportation, transmission, distribution of fuel or energy
07 ☐ Energy storage
08 ☐ Energy utilization, management
09 ☐ Fuel reprocessing or disposal
10 ☐ Energy conservation
11 ☐ Environmental impact (health, economic, etc.)
12 ☐ Education, training
13 ☐ Other — *Specify* _____

d. Please enter the number of the activity from the above list (29c) that best describes the activity in which you spend(t) MOST of your energy-related time.

Enter the appropriate code number (01 to 13) from item 29c above.

172 ☐☐ Activity

Part V — OTHER INFORMATION

30. During calendar year 1981, how many weeks —

(a) **Did you work? (Include weeks of paid vacation, paid sick leave, and military service.)** ..... 173 _____ Weeks

(b) **Were you without a job, but seeking work; or on layoff from a job?** ..... 174 _____ Weeks

(c) **Were you not working, not seeking work, and not on layoff from a job?** ..... 175 _____ Weeks

(Entries should total 52 weeks.) **52 Weeks**

31. How many years of professional work experience, including teaching, have you had? 176 _____ Years
0 ☐ None

32. Since age 22, have you had any periods of at least one year's duration when you were neither employed, nor looking for work, nor attending school full time? (Do NOT include time in the Armed Forces.) 177
2 ☐ No
1 ☐ Yes — **How many years?**
178 _____ Total years

33. *Completes the following statement:* **Based on my total education and experience, I regard myself professionally as a (an) —**

Enter code and description from Reference List C.

179 Code ☐☐☐ Description from Reference List C _____

34. Are you currently a member of a national professional society or association? 180
2 ☐ No
1 ☐ Yes — *Specify organization(s)*
181 ☐☐ (1) _____
182 ☐☐ (2) _____
183 ☐☐ (3) _____

35. Are you currently professionally licensed, certified, or registered? For example: teaching certificate, medical license, professional society certification, etc. 184
2 ☐ No
1 ☐ Yes — *Give title(s)*
185 ☐☐ (1) _____
186 ☐☐ (2) _____

36a. Was the position you held on May 9, 1976, different from your present position? (Consider a change of position to have occurred if you changed employers, if you remained with the same employer but changed your occupation, or if you remained with the same employer but had a significant change in duties or level of responsibility.) 187
1 ☐ Yes — *GO to b*
2 ☐ No
3 ☐ Not working the week of May 9, 1976 } *SKIP to 37a*
4 ☐ Not currently working

b. How was it different?

Mark (X) all that apply.

188
1 ☐ Different employer
2 ☐ Different occupation
3 ☐ Different duties or responsibilities
4 ☐ Other — *Specify change*
_____

37a. In the event it is necessary to contact you to clarify some of the information you provided, may we contact you by telephone?
☐ Yes — *GO to b*
☐ No — *SKIP to 38*

b. Enter the telephone number on which you can be reached.
189 _____ Area code _____ Number

c. If there is an alternate number on which you can be reached, enter it also.
190 _____ Area code _____ Number

38. Please enter the name of a person, other than yourself, and at an address other than yours, through whom you can be reached.
191 Name
_____
Relationship to you
_____
Number and street
_____
City or town
_____
State or foreign country | ZIP code

39. Please print your full name

40. Date prepared

Thank you for completing this questionnaire. Please return the completed form in the enclosed addressed envelope.

FORM **SSE-25**
(2-22-82)

U. S. DEPARTMENT OF COMMERCE
BUREAU OF THE CENSUS

REFERENCE LIST GUIDE

1982 NATIONAL SURVEY OF NATURAL AND SOCIAL SCIENTISTS AND ENGINEERS

REFERENCE LIST A — MAJOR FIELDS OF STUDY

This list is to be used in answering question 10 about the field(s) in which you have obtained study or training. It is a list of fields of academic study generally leading to bachelor's or higher degrees.

Please scan the entire list, choose the appropriate answer for the question and then enter the code and description in the appropriate section of question 10. If none of the categories listed below adequately describes what you were studying or being trained in, use the "Other" category (code 238) and enter a brief description of what you were studying in the space provided on the questionnaire.

Code	Description
	Biological and Agricultural Sciences and Related Fields
101	Agriculture, business
102	Agriculture, general
103	Agronomy, field crops
104	Anatomy, histology
105	Animal physiology
106	Animal science
107	Bacteriology, virology, mycology, parasitology
108	Biochemistry
109	Biology, general
110	Biometrics and biostatistics
111	Biophysics
112	Botany, general
113	Cell biology
114	Dairy sciences (dairy husbandry)
115	Ecology
116	Embryology
117	Entomology
118	Farm management
119	Fish and game or wildlife management
120	Food science (food technology and processing, dairy manufacturing and technology, food industry)
121	Forestry
122	Genetics
123	Horticulture
124	Immunology
125	Marine biology
126	Microbiology
127	Molecular biology
128	Natural resources management
129	Neurosciences
130	Nutrition
131	Pathology, human and animal
132	Pathology, plant
133	Physiology, human and animal
134	Physiology, plant
135	Poultry sciences
136	Radiology
137	Soil sciences (soil management, soil conservation)
138	Toxicology
139	Zoology, general
140	Biological and agricultural sciences, other fields
	Education
141	Biological sciences education
142	Mathematics education
143	Physical sciences education
144	Social science education
145	Education, other fields
	Engineering
146	Aerospace, aeronautical, astronautical and related fields
147	Agricultural
148	Architectural
149	Bioengineering and biomedical engineering
150	Chemical, petroleum refining
151	Civil, construction, transportation
152	Electrical, electronics, communications
153	Engineering sciences, mechanics, physics
154	Engineering technology
155	Environmental, sanitary engineering
156	General or unified
157	Geological engineering
158	Geophysical engineering
159	Industrial
160	Mechanical
161	Metallurgical, materials, ceramics
162	Mining, mineral, geological
163	Naval architecture and marine engineering
164	Ocean engineering
165	Petroleum
166	Textile engineering
167	Engineering, other fields
	Health Fields
168	Medicine or premedicine, and clinical medical sciences
169	Nursing (4 years or longer program)
170	Pathology
171	Pharmacology
172	Pharmacy
173	Health professions, other fields (4 years or longer)

Code	Description
	Mathematical Sciences
174	Actuarial sciences
175	Applied mathematics
176	Computer science
177	Mathematics
178	Operations research/management sciences
179	Statistics
	Physical Sciences
180	Analytical chemistry
181	Astronomy
182	Astrophysics
183	Atmospheric sciences and meteorology
184	Atomic – molecular physics
185	Biochemistry
186	Chemistry, general
187	Earth sciences, general
188	Elementary particles and fields
189	Geology
190	Geochemistry
191	Geophysics and seismology
192	Inorganic chemistry
193	Metallurgy
194	Nuclear physics
195	Oceanography
196	Organic chemistry
197	Paleontology
198	Pharmaceutical chemistry
199	Physical chemistry
200	Physical sciences, general
201	Physics, general
202	Solid state physics
203	Other, earth sciences
204	Other, physical sciences
	Psychology
205	Clinical
206	Counseling
207	Developmental
208	Educational
209	Experimental
210	Industrial/organizational
211	Physiological
212	Psychology, general
213	Psychometrics
214	Social
215	Psychology, other fields
	Social Sciences
216	Anthropology
217	Criminology
218	Economics, agricultural
219	Economics, except agricultural
220	Geography
221	Political science and government
222	Sociology
223	Social sciences, other fields
	Arts, Humanities, and Other Specialties
224	Architecture
225	Area studies
226	Arts, general
227	Business and commerce, including accounting, hotel and restaurant administration, and secretarial studies
228	English and journalism
229	Fine and applied arts, all fields
230	Foreign language and literature, all fields
231	History
232	Home economics, all fields
233	Law or prelaw
234	Library science
235	Military science, including merchant marine deck officer
236	Philosophy, all fields
237	Religion and theology, all fields
238	Other (*Describe briefly in the applicable item on questionnaire.*)

REFERENCE LIST B — KINDS OF BUSINESSES

This list is to be used in answering question 19 about the kind of business or industry for which you worked. Please scan the entire list, choose the appropriate answer for the question and enter the code and description from this list. If none of the categories listed below adequately describes the kind of business for which you worked, use the "Other" category (code 434).

Code	Description
	Manufacturing
401	Aircraft, aircraft engines, aircraft parts
402	Chemicals and allied products
403	Electrical machinery, equipment and supplies for the generation, storage, transformation, transmission and utilization of electrical energy
404	Electronic computers and computing equipment, and accounting, calculating and office machinery and equipment
405	Fabricated metal products (except ordnance, machinery, and transportation equipment)
406	Machinery (except electrical) including engines and turbines, farming and construction machinery, mining, metalworking and other manufacturing and service industry machines
407	Motor vehicles and motor vehicle equipment, including trucks, buses, automobiles, railroad locomotives, railroad cars, railroad equipment
408	Ordnance, including manufacture of arms, ammunition, tanks, and complete guided missiles, space vehicles, and parts
409	Petroleum and coal products, including petroleum refining
410	Primary metal industries, including smelting, refining, rolling, drawing, alloying, and manufacture of castings, forgings, and other basic metal products
411	Professional, scientific, and photographic equipment and supplies
412	Radio, television, and communication equipment and parts
413	Other manufacturing, including printing and publishing
	Educational Institutions
414	College or university (offering at least a Bachelor's degree)
415	Junior college or technical institute
416	Medical school
417	Other educational institutions
	Health Services
418	Hospital or clinic
419	Other medical and health services
	Other Kinds of Business
420	Agriculture, forestry, and fisheries
421	Business, repair, and personal services
422	Construction
423	Engineering, architectural, or surveying services
424	Museums, art galleries, and zoos
425	Private, non-profit organizations other than educational institutions and hospitals
426	Professional and technical societies
427	Research institutions
428	Other professional services, excluding health and education
429	Finance, insurance, or real estate
430	Mining and petroleum extraction
431	Retail and wholesale trade
432	Transportation, communication, or other public utilities
433	U.S. Postal Service
434	Other *(Describe briefly in the applicable item on questionnaire)*
	Public Administration, excluding U.S. Postal Service (see code 433) (Include only uniquely governmental activities, such as U.S. Park Service, U.S. Air Force, State court, Department of Motor Vehicles, city building inspection, or city public welfare. For example: if you work for the U.S. Park Service, use code 436; on the other hand, if you work at a Veteran's Administration Hospital, use code 418, Hospital or clinic; if you work at a State university, use code 414, College or university; if you work for a county road building agency, use code 422, Construction; if you work in a Defense Department research laboratory, use code 427, Research institutions.)
435	Uniformed military service
436	Federal public administration
437	State public administration
438	Local public administration
439	Regional government
440	Other government (e.g., United Nations)

REFERENCE LIST C — OCCUPATIONS

This list is to be used in answering questions 20 and 33 about your occupational and professional classification. Please scan the entire list, choose the appropriate entry and enter the code and description from this list. If you cannot find exactly the right entry, please choose the one that comes nearest to it. If none of the entries is at all appropriate, use the "Other" category (code 788) and enter a brief description in the space provided on the questionnaire. Note that codes 701 – 744 include college professors and instructors.

Code	Description
	Engineers, including college professors and instructors
701	Engineer, aeronautical, aerospace, or astronautical
702	Engineer, agricultural
703	Engineer, chemical
704	Engineer, civil or architectural
705	Engineer, electrical or electronic
706	Engineer, environmental or sanitary
707	Engineer, industrial
708	Engineer, marine engineer or naval architect
709	Engineer, mechanical
710	Engineer, metallurgical or materials
711	Engineer, mining or geological
712	Engineer, nuclear
713	Engineer, petroleum
714	Engineer, sales
715	Engineer, systems
716	Engineer, other fields *(Describe briefly in the applicable item on questionnaire.)*
	Computer Specialists, including college professors and instructors
717	Computer programmer
718	Computer scientist
719	Computer systems analyst
720	Other computer specialists *(Describe briefly in the applicable item on questionnaire.)*
	Mathematicians, Statisticians and other Mathematical Scientists, including college professors and instructors
721	Actuary, including actuarial mathematician
722	Mathematician
723	Operations research analyst
724	Statistician
725	Systems analyst, except computer systems or data processing (see code 719)
726	Other mathematical scientists *(Describe briefly in the applicable item on questionnaire.)*
	Physical Scientists, including college professors and instructors
727	Atmospheric scientist, meteorologist, space scientist
728	Chemist, except biochemist
729	Earth scientist, including geologist, geophysicist, geodesist, etc.
730	Oceanographer
731	Physicist, astronomer
732	Other physical scientists, e.g., geographer, environmental scientist, materials scientist, etc. *(Describe briefly in the applicable item on questionnaire.)*
	Biological Scientists, including college professors and instructors
733	Agricultural scientist, food scientist, fishery biologist
734	Biochemist
735	Biological scientist, life scientist, botanist, ecologist
736	Biophysicist
737	Forestry or conservation scientist, including foresters and conservationists
738	Medical scientist, excluding persons who are primarily medical practitioners (see Health Occupations)
739	Other biological scientists *(Describe briefly in the applicable item on questionnaire.)*
	Social Scientists, including college professors and instructors
740	Anthropologist
741	Economist, including market research analysts
742	Psychologist
743	Sociologist
744	Other social scientists, e.g., demographer, historian, political scientist, etc. *(Describe briefly in the applicable item on questionnaire.)*

Code	Description
	Health Occupations, including persons who are primarily practitioners. Persons engaged primarily in medical research, teaching, and similar activities use code 738, Medical scientist.
745	Dental hygienist
746	Medical technician
747	Physician or surgeon
748	Other health occupations, e.g., dentist, pharmacist, practical and registered nurse, etc. *(Describe briefly in the applicable item on questionnaire.)*
	Technicians and technologists, except medical and health
749	Designer, electronic parts
750	Designer, industrial
751	Designer, machine tools
752	Designer, other
753	Drafting occupations, including draftsman
754	Technician, architectural
755	Technician, biological and agricultural
756	Technician, construction and highway
757	Technician, electrical and electronic
758	Technician, industrial engineering
759	Technician, mechanical engineering
760	Technician, other engineering
761	Technician, surveying and mapping (Surveyors, see code 787)
762	Technician, other science
763	Technician, other fields *(Describe briefly in the applicable item on questionnaire.)*
	Teachers
764	Teacher, elementary school
765	Teacher, secondary school
766	Teacher, college and university teacher of non-engineering and non-science subjects (Engineering and science teachers, see codes 701 – 744.)
	Administrators, Managers, and Officials, excluding farm
767	Administrator or manager, production and operations
768	Administrator or manager, scientific and technical research and development
769	Administrator, manager, or official, all others, excluding self employed
770	College president or dean
771	Self employed proprietor
772	Urban and regional planners
	All other occupations
773	Accountant, except financial analyst
774	Administrative support occupations, including clerical work (such as bookkeeper, secretary, etc.)
775	Clergy
776	Farmer (owner, manager, tenant, or farm laborer)
777	Financial analyst
778	Firefighter or police
779	Laborer, except farm
780	Lawyer or judge
781	Librarian
782	Merchant or shopkeeper, self employed
783	Operator or fabricator (such as assembler, welder, truck driver, etc.)
784	Postal worker
785	Precision production, craft, and repair occupations (such as carpenter, electrician, mechanic, repair worker, etc.)
786	Sales occupations, excluding sales engineer
787	Surveyor
788	Other occupations, not specified above *(Describe briefly in the applicable item on questionnaire.)*

1981 SURVEY OF DOCTORATE RECIPIENTS

OMB No. 3145-0020

CONDUCTED BY THE NATIONAL RESEARCH COUNCIL WITH THE SUPPORT OF THE NATIONAL SCIENCE FOUNDATION, THE NATIONAL ENDOWMENT FOR THE HUMANITIES, THE NATIONAL INSTITUTES OF HEALTH, AND THE DEPARTMENT OF ENERGY

NOTE: THIS INFORMATION IS SOLICITED UNDER THE AUTHORITY OF THE NATIONAL SCIENCE FOUNDATION ACT OF 1950, AS AMENDED. ALL INFORMATION YOU PROVIDE WILL BE TREATED AS CONFIDENTIAL, WILL BE SAFEGUARDED IN ACCORDANCE WITH THE PROVISIONS OF THE PRIVACY ACT OF 1974, AND WILL BE USED FOR STATISTICAL PURPOSES ONLY. INFORMATION WILL BE RELEASED ONLY IN THE FORM OF STATISTICAL SUMMARIES OR IN A FORM WHICH DOES NOT IDENTIFY INFORMATION ABOUT ANY PARTICULAR PERSON. YOUR RESPONSE IS ENTIRELY VOLUNTARY AND YOUR FAILURE TO PROVIDE SOME OR ALL OF THE REQUESTED INFORMATION WILL IN NO WAY ADVERSELY AFFECT YOU.

If your name and address are incorrect, please enter correct information below.

_____

_____

_____

— — — — — – — — — —

INCLUDE NEW NINE-DIGIT ZIP CODE IF KNOWN

(10)

If there is an alternate address through which you can always be reached, please provide it on the line below.

_____

c/o Number Street City State ZIP Code (11)

1a. How many full-time equivalent years of professional work experience have you had? _____ Year(s) (12-13)

b. Since receiving the doctorate, how many full-time equivalent years of professional work experience have you had? _____ Year(s) (14-15)

c. Since receiving the doctorate, how many full-time equivalent years of work experience, if any, involved teaching? _____ Year(s) (16-17)

2. What was your employment status (includes postdoctoral appointment*) during FEBRUARY 1981?

☐ Circle your selection and enter number from below (18)

1. Employed full-time (Skip to Question #4)
2. Employed part-time
   If you were employed part-time, were you seeking full-time employment? ☐ Yes ☐ No (19)
3. Postdoctoral appointment*
   If you held a postdoctoral appointment, was it ☐ full-time (Skip to Question #4) ☐ part-time (20)
4. Unemployed and seeking employment
5. Not employed and not seeking employment
6. Retired and not employed

(Skip to Question #20)

7. Other, specify _____

*Temporary appointment in academia, industry or government, the primary purpose of which is to provide for continued education or experience in research.

3. If you were employed part-time during FEBRUARY 1981, what was the MOST important reason for being in that position?

☐ Enter number from below (21)

1. Part-time employment preferred
2. Full-time position not available
3. Constraints due to family or marital status
4. Other, specify _____

4. From the Degree and Employment Specialties List on page 4 select and enter both the number and title of the employment specialty most closely related to your principal employment or postdoctoral appointment during FEBRUARY 1981. Write in your specialty if it is not on the list.

_____

Number Title of Employment Specialty (22-24)

5. If you were employed during FEBRUARY 1981 in a specialty field other than your field of Ph.D., what was the MOST important reason for being in that position?

☐ Enter number from below (25)

1. Better pay
2. More attractive career options
3. Preferred specific geographic location
4. Constraints due to family or marital status
5. Position in Ph.D. field not available
6. Promoted out of position in Ph.D. field
7. Other, specify _____

6. Please give the name of your principal employer (company, organization, postdoctoral institution, etc. or, if self employed, write "self") and actual place of employment during FEBRUARY 1981.

_____

Name of Employer (26-31)

_____

Number Street

_____

City State

_____

ZIP Code (32-40)

7. Which category below best describes the type of organization of your principal employment OR postdoctoral appointment during FEBRUARY 1981?

☐ Enter number from below (41-42)

1. Business or industry (including self-employed)
2. Junior college, 2-year college, technical institute
3. Medical school (including university affiliated hospital or medical center)
4. 4-year college
5. University, other than medical school
6. Elementary or secondary school system
7. Private foundation
8. Hospital or clinic
9. U.S. military service, active duty, or Commissioned Corps, e.g., USPHS, NOAA
10. U.S. government, civilian employee
11. State government
12. Local or other government, specify _____
13. Nonprofit organization, other than those listed above
14. Other, specify _____

8. What were your primary and secondary work activities during FEBRUARY 1981? (Enter number from the list provided below)

☐ Primary (43-44) ☐ Secondary (45-46)

1. Teaching
2. Basic research
3. Applied research
4. Development of equipment, products, systems, data
5. Design
6. Writing
7. Editing
8. Professional services to individuals

Management or administration of:

9. Research and development
10. Educational programs
11. Other
12. Consulting
13. Production
14. Cultural resources
15. Archival work
16. Curatorial work
17. Performing arts
18. Quality control, inspection, testing
19. Sales, marketing, purchasing, estimating
20. Other, specify _____

9. What was the basic annual salary* associated with your principal professional employment during FEBRUARY 1981? If you were on a postdoctoral appointment (see question #2 for definition), what was your stipend plus allowances? $ _____ per year (47-49)

Check whether salary was for ☐ 9-10 months or ☐ 11-12 months (50)

*Basic salary is your annual salary before deductions for income tax, social security, retirement, etc., but does not include bonuses, overtime, summer teaching, or other payment for professional work.

10a. What was your basic annual salary* for the year ending December 31, 1980? $ _____ per year (51-53)

Check whether salary was for ☐ 9-10 months or ☐ 11-12 months (54)

b. What was your gross professional income† for the year 1980? $ _____ per year (55-57)

†Gross professional income is all payments received for professional activities including basic salary before deductions plus bonuses, consulting fees, honoraria, royalties, rental and subsistence allowances, etc.

11. What percentage of your professional work time did you devote to each of the following activities during FEBRUARY 1981?
(Total should equal 100%)

	%		%
1.	_____ (58) Management or administration of R&D	7.	_____ (70) Consulting
2.	_____ (60) Management or administration of educational programs	8.	_____ (72) Writing/editing
3.	_____ (62) Management or administration of other programs	9.	_____ (74) Development/design
4.	_____ (64) Teaching	10.	_____ (76) Cultural resources
5.	_____ (66) Applied research	11.	_____ (78) Other, specify _____
6.	_____ (68) Basic research		

12. If you were employed by an academic institution during FEBRUARY 1981, did you hold a tenured position? 1 ☐ Yes 2 ☐ No (10)

If YES, what year was tenure granted? _____ (11-12)

If NO, did you hold a tenure-track position? 1 ☐ Yes 2 ☐ No (13)

13. If you were employed by an academic institution during FEBRUARY 1981, what was the rank of your position? ☐ Enter number from below (14)

Faculty

1. Professor
2. Associate professor
3. Assistant professor
4. Instructor
5. Administrator
6. Other, specify _____ *Title*

Non-Faculty

7. Teaching staff
8. Research staff
9. Other, specify _____ *Title*

14. Was any of your work during FEBRUARY 1981 supported or sponsored by U.S. Government funds?

1 ☐ Yes 2 ☐ No 3 ☐ Don't Know (15)

If YES, which federal agencies or departments were supporting the work?

Enter number(s) from the List of Federal Supporting Agencies on page 4.

_____ (16-39)

15. How important was your DOCTORAL degree in enabling you to attain your present position? (Check only one.)

1 ☐ Essential qualification
2 ☐ Helpful, but not essential
3 ☐ Unimportant
4 ☐ Cannot ascertain (40)

16. **Listed below are selected topics of national interest. If you devoted a proportion of your professional time which you considered significant to any of these problem areas during FEBRUARY 1981, please give the corresponding number of the ONE on which you spent the MOST time.**

☐ Enter number from below (41-42)

1. Energy or fuel
2. Health
3. Defense
4. Environ. protection, pollution control
5. Education (other than teaching)
6. Space
7. Crime prevention and control
8. Food and other agricultural products
9. Natural resources, other than fuel or food
10. Community development and services
11. Housing (planning, design, construction)
12. Transportation, communications
13. Cultural life
14. Other area, specify _____

If you did not select energy or fuel (category #1) in question #16, please skip to question #20.

17. **From the list below, give the corresponding number of the ONE energy source that involved the LARGEST proportion of your energy related work during FEBRUARY 1981.**

☐ Enter number from below (43)

1. Coal and coal products
2. Petroleum (including oil shale and tar sands) or natural gas
3. Fission
4. Fusion
5. Hydroenergy
6. Direct solar (including space and water heating, thermal, electric)
7. Indirect solar (winds, tides, biomass, etc.)
8. Geothermal
9. Other, specify _____

18. **Please read the following list of energy-related activities and give the corresponding number(s) from the list below of the activity(ies) in which you were engaged during FEBRUARY 1981.** Enter number(s) from below _____ (44-63)

1. Exploration
2. Extraction (gas, oil, mining)
3. Manufacture of energy-related components or products
4. Fuel processing (including refining and enriching)
5. Electric power generation
6. Transportation, transmission, distribution of fuel or energy
7. Energy storage
8. Energy utilization, management
9. Fuel reprocessing or disposal
10. Energy conservation
11. Environmental impact (health, economic, etc.)
12. Education, training
13. Research and development
14. Other, specify _____

19. **Please enter the number 1-14 from question #18 that BEST describes the activity in which you spent MOST of your energy-related time.** ☐ (64-65)

20. **What is the major field of your doctorate? Please use the Specialties List on page 4. Please provide the name of the institution where the degree was earned and the year the degree was granted.**

Ph.D. Field (66-68) Month and Year Granted (69-71) Institution (72-77)

21. **Date of Birth**

Mo. Day Year

____ ____ ____ (10-14)

22. **Citizenship**

1 ☐ U.S. Native Born
2 ☐ U.S. Naturalized
3 ☐ Non-U.S., Immigrant (Perm. Res.)
4 ☐ Non-U.S., Immigrant (Temp. Res.) (15)

IF NON-U.S., specify country of citizenship _____ (16-17)

23a. **What is your marital status?**

1 ☐ Now Married
2 ☐ Widowed
3 ☐ Never Married
4 ☐ Divorced, separated (18)

23b. **Do you have any children living with you who are:**

Under 6 years of age? 1 ☐ Yes How many? _____ 2 ☐ No (19-20)

Between 6 and 18 years of age? 1 ☐ Yes How many? _____ 2 ☐ No (21-22)

24. **Are you physically handicapped?** 1 ☐ Yes 2 ☐ No (23) If Yes, enter number(s) from below _____ (24-27)

1. Visual 2. Auditory 3. Ambulatory 4. Other, specify _____

25a. **What is your racial background?**

1 ☐ American Indian or Alaskan Native
2 ☐ Asian or Pacific Islander
3 ☐ Black
4 ☐ White (28)

25b. **Is your ethnic heritage Hispanic?**

1 ☐ Yes
2 ☐ No (29)

If Yes, is it:
1 ☐ Mexican-American
2 ☐ Puerto Rican
3 ☐ Other Hispanic (30)

Thank you for completing this questionnaire. Please return the completed form in the enclosed envelope to the Commission on Human Resources, JH638, National Research Council, 2101 Constitution Avenue, Washington, D.C. 20418.

DEGREE AND EMPLOYMENT SPECIALTIES LIST

MATHEMATICAL SCIENCES

000 - Algebra
010 - Analysis & Functional Analysis
020 - Geometry
030 - Logic
040 - Number Theory
052 - Probability
055 - Math. Statistics (see also 544, 670, 725, 727)
060 - Topology
082 - Operations Research (see also 478)
085 - Applied Mathematics
089 - Combinatorics & Finite Mathematics
091 - Physical Mathematics
098 - Mathematics, General
099 - Mathematics, Other*

COMPUTER SCIENCES

071 - Theory
072 - Software Systems
073 - Hardware Systems
074 - Intelligent Systems
079 - Computer Sciences, Other (see also 437, 476)

PHYSICS & ASTRONOMY

101 - Astronomy
102 - Astrophysics
110 - Atomic & Molecular
120 - Electromagnetism
130 - Mechanics
132 - Acoustics
134 - Fluids
135 - Plasma
136 - Optics
138 - Thermal
140 - Elementary Particles
150 - Nuclear Structure
160 - Solid State
198 - Physics, General
199 - Physics, Other*

CHEMISTRY

200 - Analytical
210 - Inorganic
215 - Synthetic Inorganic & Organometallic
220 - Organic
225 - Synthetic Organic & Natural Products
230 - Nuclear
240 - Physical
245 - Quantum
250 - Theoretical
255 - Structural
260 - Agricultural & Food
265 - Thermodynamics & Material Properties
270 - Pharmaceutical
275 - Polymers
280 - Biochemistry (see also 540)
285 - Chemical Dynamics
298 - Chemistry, General
299 - Chemistry, Other*

EARTH, ENVIRONMENTAL AND MARINE SCIENCES

301 - Mineralogy, Petrology
305 - Geochemistry
310 - Stratigraphy, Sedimentation
320 - Paleontology
330 - Structural Geology
341 - Geophysics (Solid Earth)
350 - Geomorph. & Glacial Geology
391 - Applied Geol., Geol. Engr. & Econ. Geol.
395 - Fuel Tech. & Petrol. Engr. (see also 479)
380 - Hydrology & Water Resources
370 - Oceanography
397 - Marine Sciences, Other*
381 - Atmospheric Physics & Chemistry
382 - Atmospheric Dynamics
383 - Atmospheric Sciences, Other*
388 - Environmental Sciences, General (see also 480, 528)
389 - Environmental Sciences, Other*
398 - Earth Sciences, General
399 - Earth Sciences, Other*

ENGINEERING

400 - Aeronautical & Astronautical
410 - Agricultural
415 - Biomedical
420 - Civil
430 - Chemical
435 - Ceramic
437 - Computer
440 - Electrical
445 - Electronics
450 - Industrial & Manufacturing
455 - Nuclear
460 - Engineering Mechanics
465 - Engineering Physics
470 - Mechanical
475 - Metallurgy & Phys. Met. Engr.
476 - Systems Design & Systems Science (see also 072, 073, 074)
478 - Operations Research (see also 082)
479 - Fuel Technology & Petrol. Engr. (see also 395)
480 - Sanitary & Environmental
486 - Mining
497 - Materials Science
498 - Engineering, General
499 - Engineering, Other*

AGRICULTURAL SCIENCES

500 - Agronomy
501 - Agricultural Economics
502 - Animal Husbandry
503 - Food Science and/or Technology (see also 573)
504 - Fish & Wildlife
505 - Forestry
506 - Horticulture
507 - Soils & Soil Science
510 - Animal Science & Animal Nutrition
511 - Phytopathology
518 - Agriculture, General
519 - Agriculture, Other*

MEDICAL SCIENCES

520 - Medicine & Surgery
522 - Public Health & Epidemiology
523 - Veterinary Medicine
524 - Hospital Administration
526 - Nursing
527 - Parasitology
528 - Environmental Health
534 - Pathology
536 - Pharmacology
537 - Pharmacy
538 - Medical Sciences, General
539 - Medical Sciences, Other*

BIOLOGICAL SCIENCES

540 - Biochemistry (see also 280)
542 - Biophysics
543 - Biomathematics
544 - Biometrics and Biostatistics (see also 055, 670, 725, 727)
545 - Anatomy
546 - Cytology
547 - Embryology
548 - Immunology
550 - Botany
560 - Ecology
562 - Hydrobiology
564 - Microbiology & Bacteriology
566 - Physiology, Animal
567 - Physiology, Plant
569 - Zoology
570 - Genetics
571 - Entomology
572 - Molecular Biology
573 - Food Science and/or Technology (see also 503)
574 - Behavior/Ethology
576 - Nutrition & Dietetics
578 - Biological Sciences, General
579 - Biological Sciences, Other*

PSYCHOLOGY

600 - Clinical
610 - Counseling & Guidance
620 - Developmental & Gerontological
630 - Educational
635 - School Psychology
641 - Experimental
642 - Comparative
643 - Physiological
650 - Industrial & Personnel
660 - Personality
670 - Psychometrics (see also 055, 544, 725, 727)
680 - Social
698 - Psychology, General
699 - Psychology, Other*

SOCIAL SCIENCES

700 - Anthropology
703 - Archeology
708 - Communications*
709 - Linguistics
710 - Sociology
720 - Economics (see also 501)
725 - Econometrics (see also 055, 544, 670, 727)
727 - Social Statistics (see also 055, 544, 670, 725)
740 - Geography
745 - Area Studies*
751 - Political Science
752 - Public Administration
755 - International Relations
760 - Criminology & Criminal Justice
770 - Urban & Regional Planning
775 - History & Philosophy of Science
798 - Social Sciences, General
799 - Social Sciences, Other*

HUMANITIES

802 - History & Criticism of Art
804 - History, American
805 - History, European
808 - History, Other*
808 - American Studies
809 - Theater & Theater Criticism
830 - Music
831 - Speech as a Dramatic Art (see also 885)
834 - Philosophy
836 - Comparative Literature
891 - Library & Archival Sciences
878 - Humanities, General
879 - Humanities, Other*

LANGUAGES & LITERATURE

811 - American
812 - English
821 - German
822 - Russian
823 - French
824 - Spanish & Portuguese
826 - Italian
827 - Classical*
829 - Other Languages*

EDUCATION & OTHER PROFESSIONAL FIELDS

801 - Art, Applied
833 - Religion
881 - Theology
882 - Business Administration
883 - Home Economics
884 - Journalism
885 - Speech & Hearing Sciences (see also 831)
886 - Law, Jurisprudence
887 - Social Work
897 - Professional Field, Other*
938 - Education (other than teaching in a field listed above)
899 - Other Fields*

*Identify the specific field in the space on the questionnaire.

LIST OF FEDERAL SUPPORTING AGENCIES (For use with #14)

1 Agency for International Development
2 Environmental Protection Agency
3 National Aeronautics & Space Administration
4 National Endowment for the Arts
5 National Endowment for the Humanities
6 National Science Foundation
7 Nuclear Regulatory Commission
8 Smithsonian Institution
9 Department of Agriculture
10 Department of Commerce
11 Department of Defense
12 Department of Energy
13 National Institutes of Health (DHHS)
14 Alcohol, Drug Abuse & Mental Health Administration (NIAA, NIDA, NIMH)
15 Other DHHS, specify_____
16 National Institute of Education (E.D.)
17 Other Department of Education (E.D.)
18 Department of Housing and Urban Development
19 Department of the Interior
20 Department of Justice
21 Department of Labor
22 Department of State
23 Department of Transportation
24 Other agency or department, specify_____
25 Don't know source agency

INSTITUTE FOR SURVEY RESEARCH
TEMPLE UNIVERSITY
-Of The Commonwealth System Of Higher Education-
PHILADELPHIA, PENNSYLVANIA 19122

STUDY #518-305-01
FALL/WINTER 1982

OMB No.: 3145-0032
Expires: December 1983

1982 SURVEY OF SCIENCE AND ENGINEERING GRADUATES

NATIONAL SCIENCE FOUNDATION
AND
U.S. DEPARTMENT OF ENERGY

This information is solicited under the authority of the National Science Foundation Act of 1950, as amended. All information you provide will be treated as confidential and will be used for statistical purposes only. Information will be released only in the form of statistical summaries from which it will be impossible to identify any particular person. Your response is entirely voluntary and failure to provide some or all of the requested information will not in any way adversely affect you.

NAME: _____

ADDRESS: _____

_____

TELEPHONE: ( ) _____

DEGREE AND EMPLOYMENT SPECIALTY LIST

Agriculture

803 Agricultural economics
013 Agronomy
014 Animal, dairy, poultry, sciences
015 Farm and range management
016 Fish, game and wildlife management
017 Food sciences
018 Forestry and related sciences
019 Horticulture
020 Natural resources management
021 Soil science
090 Agricultural sciences, other

Biological Sciences

211 Anatomy, histology
213 Biochemistry
214 Biophysics
215 Botany
221 Cell and molecular biology
216 Entomology
226 Embryology
217 Genetics
218 Immunology
219 Marine biology
220 Microbiology, bacteriology
227 Neurosciences
222 Nutrition
228 Parasitology
223 Pathology, human, animal, plant
224 Physiology, human, animal, plant
229 Radiobiology
230 Toxicology
225 Zoology
290 Biological sciences, other

Education

413 Biological sciences education
414 Engineering education
417 Mathematics education
421 Physical sciences education
425 Social science education
490 Education, other

Engineering

511 Aerospace, aeronautical, astronautical
512 Agricultural
513 Architectural
514 Bioengineering and biomedical engineering
515 Chemical
516 Civil, construction, and transportation
723 Computer
517 Electrical, electronic, and communication
529 Engineering science
519 Environmental and sanitary
520 Geological
521 Industrial
530 Materials
522 Mechanical
523 Metallurgical
524 Mining and mineral
525 Naval architecture and marine
526 Nuclear
531 Ocean
527 Petroleum
751 Operations research/management sciences
590 Engineering, other

Mathematical Sciences

711 Actuarial science
723 Computer sciences
750 Mathematics
751 Operations research/management sciences
713 Statistics
723 Computer and information sciences
780 Mathematics, other

Physical Sciences

720 Astronomy
721 Atmospheric sciences and meteorology
213 Biochemistry
722 Chemistry
741 Earth sciences and geology
733 Metallurgy
742 Oceanography
731 Physics
790 Physical sciences, other

Social Sciences

811 Anthropology
812 Criminology
813 Economics (except agricultural)
814 Geography
118 Linguistics
817 Political science and government
818 Psychology (except clinical)
821 Sociology
822 Urban studies
890 Other social sciences

Health Sciences

611 Clinical psychology
612 Dentistry
614 Hospital and health care administration
615 Medicine or pre-medicine
616 Nursing
617 Pharmacology
618 Pharmacy
690 Other health areas

Arts, Humanities and Other Specialties

910 Area and ethnic studies
911 Architecture and environmental design
110 Arts and letters, general
310 Business and commerce
115 English and journalism
114 Fine and applied arts
116 Foreign language and literature, all fields
815 History
912 Home economics, all fields
913 Law and prelaw
915 Military science, including merchant marine deck officer
816 Philosophy
819 Religion and theology
820 Social work
999 Other specialties

INSTRUCTIONS FOR COMPLETING THIS QUESTIONNAIRE

In constructing this questionnaire we have tried to provide response categories for most answers. If the response categories are not adequate for you to answer a question correctly, please write your answer in the question box. If you are not certain of the correct response, please give us your best estimate or guess.

There are basically two types of questions: the closed-end questions, where response categories have been provided and you are asked to mark a box; and open-end questions, where you are asked to fill in the information sought. In addition, in some of the questions you are asked to fill in "code numbers" either from the list on page 2 or from a preceding question.

An example of each type, with sample answers, is shown below.

1. Do you subscribe to any periodical journals or magazines?

   1. [X] Yes *(GO TO QUESTION 2)*
   2. [ ] NO *(SKIP TO QUESTION 4)*

2. Which of the following journals or magazines do you receive? *(MARK AS MANY AS APPLY)*

   01. [X] Newsweek
   02. [ ] Time
   03. [ ] Life
   04. [X] Science
   05. [X] Scientific American
   06. [X] Other, *Specify:* Smithsonian

3. Which of the journals marked in question 2 most relates to the kind of work you do? *(ENTER THE APPROPRIATE CODE NUMBER FROM QUESTION 2)*

   [0] [4]

4. What professional society or association do you belong to?

   National Association of Mechanical Engineers

Please answer all the questions that apply to you and follow directions which may ask you to skip certain questions. In the absence of instructions, always go to the next question. Even if you feel only part of the questionnaire applies to you, or there are some questions you cannot answer, please return the entire questionnaire.

We appreciate your participation and thank you for completing this questionnaire.

PART I. DEMOGRAPHIC CHARACTERISTICS

1. In what month and year were you born? 10

_____ (MONTH) _____ (YEAR)

2. Are you: 12

1. ☐ Male 2. ☐ Female

3. Are you: 13

1. ☐ U.S. citizen *(GO TO QUESTION 4)*
2. ☐ Non-U.S. citizen, immigrant (permanent resident)
3. ☐ Non-U.S. citizen, nonimmigrant (temporary resident)

3a. If non-U.S. citizen, of which country are you a citizen?

_____ (COUNTRY)

4. Are you: 16

1. ☐ American Indian or Alaskan Native
2. ☐ Asian or Pacific Islander
3. ☐ Black
4. ☐ White
5. ☐ Other, *please specify:*

_____

5. Are you of Spanish/Hispanic origin or descent? 17

1. ☐ Yes → 2. ☐ Mexican-American 3. ☐ Puerto Rican 4. ☐ Other Hispanic
5. ☐ No

6. As of May 9, 1982, were you: 18

1. ☐ Married 2. ☐ Widowed
3. ☐ Separated 4. ☐ Divorced
5. ☐ Never married

7. As of May 9, 1982, did you have any children living with you? 19

1. ☐ Yes → 2. ☐ Under 6 years of age 3. ☐ 6-17 years of age
4. ☐ No

8. Are you physically handicapped? 20

1. ☐ Yes *(GO TO QUESTION 9)*
2. ☐ No *(SKIP TO QUESTION 10)*

9. What is the nature of your handicap(s)? *(MARK AS MANY AS APPLY)* 21

1. ☐ Visual 2. ☐ Ambulatory
4. ☐ Auditory 8. ☐ Other, *specify:*

_____

10. Are you a student, currently attending a college or university? 23

1. ☐ Yes → 2. ☐ Student, full-time 3. ☐ Student, part-time
4. ☐ No

In the next section (Question 11) beginning with the most recent and working back, list on the appropriate line each institution beyond the high school level from which you have obtained or are obtaining formal training leading to an academic degree.

Designate degrees by abbreviations, for example, AA, BA, MA, MS, Ph.D., LLB, MD, etc. Use a separate line for each degree granted or worked for, or for any change in major field of specialized study. Refer to the list on page 2 for the code number and the description of major fields. Do NOT include correspondence courses, on-the-job training, apprenticeship, or training at an employer's training school.

If you need more space, attach a separate sheet of paper and give the same type of information for each additional school listed.

PART II. EDUCATION AND TRAINING

(11a.) College, university or other post high school institution	(b.) Type of degree worked for, if any (BA, MA, etc.)	(c.) Year degree awarded	(d.) Major field *(ENTER CODE AND DESCRIPTION FROM LIST ON PAGE 2)*
MOST RECENT: 24 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	28 *(DEGREE)* OR ☐ None	30 19____ OR ☐ None	32 *(CODE)* *(DESCRIPTION)*
SECOND TO LAST: 35 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	39 *(DEGREE)* OR ☐ None	41 19____ OR ☐ None	43 *(CODE)* *(DESCRIPTION)*
THIRD TO LAST: 46 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	50 *(DEGREE)* OR ☐ None	52 19____ OR ☐ None	54 *(CODE)* *(DESCRIPTION)*
FOURTH TO LAST: 57 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	61 *(DEGREE)* OR ☐ None	63 19____ OR ☐ None	65 *(CODE)* *(DESCRIPTION)*
FIFTH TO LAST: 68 *(NAME)* *(CITY)* *(STATE OR FOREIGN COUNTRY)*	72 *(DEGREE)* OR ☐ None	74 19____ OR ☐ None	76 *(CODE)* *(DESCRIPTION)*

PART III. EMPLOYMENT STATUS

12. During the week of May 9, 1982, were you: 2/8

1. ☐ Working full-time (35 hours or more at least in one position) *(SKIP TO QUESTION 16)*
2. ☐ Working part-time *(GO TO QUESTION 13)*
3. ☐ Not working, but seeking work *(SKIP TO PART IV ON PAGE 7)*
4. ☐ Not working and not seeking work *(SKIP TO QUESTION 14)*

13. Were you seeking full-time work? 9

1. ☐ Yes
2. ☐ No

(SKIP TO QUESTION 16)

14. Did you look for work at any time during the three weeks prior to the week of May 9, 1982; that is, between April 18 and May 8, 1982? 10

1. ☐ Yes 2. ☐ No

15. What was the main reason you were not working or not seeking work during the week of May 9, 1982? 11

(MARK ONLY ONE BOX)

1. ☐ On layoff from a job
2. ☐ On vacation or otherwise temporarily absent from a job for health or personal reasons

(GO TO QUESTION 16)

3. ☐ Retired
4. ☐ Student
5. ☐ Family responsibilities
6. ☐ Chronic illness or permanent disability
7. ☐ Could not find work or believed no jobs available in my particular field
8. ☐ Did not want to work
9. ☐ New job to begin within 30 days
10. ☐ Waiting for school to begin
11. ☐ Other, *please specify:*

(SKIP TO PART IV ON PAGE 7)

_____

_____

16. During the week of May 9, 1982, were you working at (or on layoff or temporarily absent from) a position related to the natural sciences, social sciences, or engineering? 13

1. ☐ Yes *(SKIP TO PART IV ON PAGE 7)*
2. ☐ No *(GO TO QUESTION 17)*

17. What was the most important reason for taking that position? 14

(MARK ONLY ONE BOX)

1. ☐ Preferred nonscience or nonengineering position
2. ☐ Promoted out of science or engineering position
3. ☐ Pay was better in nonscience or nonengineering position
4. ☐ Locational preference
5. ☐ Science or engineering position not available
6. ☐ Other reason, *please specify:*

_____

_____

_____

_____

PART IV. EMPLOYMENT PROFILE

☐ *If you have never been employed, nor self-employed, please mark this box and SKIP TO QUESTION 39. Otherwise, CONTINUE with the instructions below.*

In this part of the questionnaire, we are asking questions about the job you held during the week of May 9, 1982, or your most recent job before May 9. Please include any employment, including a military service job, not only a scientific or technical job. If you had more than one regular job during the week of May 9, record the one which you consider your principal employment.

16

18. For whom did you work? What is the name of the company, business or the government agency you worked for?

_____

Check here if self-employed ☐

19

19. Where were you employed, that is, in what city, county and state?

_____ *(CITY OR TOWN)* _____ *(COUNTY)* _____ *(STATE OR FOREIGN COUNTRY)*

25

20. Which of the categories below best describes the type of organization of your principal employment or post-doctoral appointment? *(MARK ONLY ONE BOX)*

01 ☐ Self-employed
02 ☐ Business or industry
03 ☐ Junior college, 2-year college, technical institute
04 ☐ Medical school
05 ☐ 4-year college or university, other than medical school
06 ☐ Elementary or secondary school system
07 ☐ Hospital or clinic
08 ☐ Nonprofit organization, other than hospital, clinic or educational institution
09 ☐ U.S. military service, active duty, or Commissioned Corps, such as USPHS, NOAA, etc.
10 ☐ U.S. Government, civilian employee
11 ☐ State government
12 ☐ Local or other government *(SPECIFY):* _____

_____

13 ☐ International agency
14 ☐ Other *(SPECIFY):* _____

_____

27

21. If you had more than one job during the week of May 9, 1982, enter the category from the above list that is most appropriate for your second job.
(ENTER THE APPROPRIATE CODE NUMBER, 01-14, FROM Q. 20 ABOVE)

☐☐ ☐ Did not have a second job the week of May 9, 1982

(22.) From the activities listed below, select your primary and secondary work activities for your principal job as reported in question 18, in terms of time devoted for a typical week. 49
(ENTER THE APPROPRIATE CODE NUMBER 01-16 FOR EACH)

☐☐ Primary activity ☐☐ Secondary activity

01 Management or administration of research or development
02 Management or administration of other than research and development
03 Teaching and training - preparing and teaching courses, guiding and counseling students or trainees
04 Basic research - that is, study directed toward gaining scientific knowledge primarily for its own sake
05 Applied research - that is, study directed toward gaining scientific knowledge in an effort to meet a recognized need
06 Development - product, process, and technical development. That is, direction of knowledge gained from research toward production of useful materials, devices, systems and methods
07 Report and technical writing, editing, information retrieval
08 Clinical diagnosis
09 Design of equipment, processes, models
10 Quality control, testing, evaluation, or inspection
11 Operations - production, maintenance, construction, installation
12 Distribution - sales, traffic, purchasing, customer and public relations
13 Statistical work - survey work, forecasting, statistical analysis
14 Consulting
15 Computer applications
16 Other activities *(SPECIFY)*: _____

_____

(23.) During a typical week in your principal job reported in question 18, what percent of working time do you devote to each of the following activities? 51
(ENTRIES SHOULD TOTAL 100%)

_____% Management & administration

_____% Basic research

_____% Applied research

_____% Development

_____% Teaching

_____% Operations, production

_____% Other

100.0 % TOTAL

(24.) From the Degree and Employment Specialty List on page 2, select and enter the number and title of the specialty most closely related to your principal employment (reported in question 18) during the week of May 9, 1982. 54
(PLEASE WRITE IN YOUR SPECIALTY IF IT IS NOT ON THE LIST)

Number: ☐☐☐

Title : _____

_____

57

25. For your principal job reported in question 18, what is the basic annual salary you currently earn?
(Do not include bonuses, overtime, summer teaching or other payments for secondary jobs)

$_____.00 per year

☐ Not currently employed at that job.

62

26. If academically employed in your principal job, is your salary for:

☐ 9-10 months, OR ☐ 11-12 months?

63

27. What was your total professional income in 1981 including basic annual salary, bonuses, overtime, summer teaching, consulting fees, etc.?

$_____.00 per year

☐ None

68

28. What was your basic annual salary in 1981 from the principal job you held longest, excluding bonuses, overtime, summer teaching, consulting fees, etc.?

$_____.00 per year

☐ None

73

29. During the week of May 9, 1982, was any of your work at your principal job supported by U.S. Government funds?

1. ☐ Yes → *(GO TO QUESTION 30)*
2. ☐ No
3. ☐ Don't know → *(SKIP TO Q. 31)*

3/8

30. Which of the following agencies or departments were supporting your work?
(MARK AS MANY AS APPLY)

1. ☐ AID--Agency for International Development
2. ☐ Department of Agriculture
3. ☐ Department of Commerce
4. ☐ Department of Defense
5. ☐ Department of Energy
6. ☐ Department of Education (NIE, OE, NCES)
7. ☐ Department of Health and Human Services (DHHS old HEW)
8. ☐ Department of Housing and Urban Development (HUD)
9. ☐ Department of the Interior
10. ☐ Department of Justice
11. ☐ Department of Labor (DOL)
12. ☐ Department of Transportation
13. ☐ EPA--Environmental Protection Agency
14. ☐ NASA--National Aeronautics and Space Administration
15. ☐ NSF--National Science Foundation
16. ☐ Nuclear Regulatory Commission
17. ☐ Other, *specify:* ↘

_____

18. ☐ Don't know source agency

26

31. The following list contains selected areas of national interest. Indicate the one area to which you devote(d) the most professional time during a typical week at the job reported in question 18.

1. ☐ Energy and fuel *(GO TO Q. 32)*
2. ☐ Health
3. ☐ Environment
   Education
   4. ☐ Teaching
   5. ☐ Other education
6. ☐ National defense
7. ☐ Crime prevention and control
8. ☐ Food production and technology
9. ☐ Other mineral resources
10. ☐ Community development and service
11. ☐ Housing (planning, design, construction)
12. ☐ None of the above

(SKIP TO QUESTION 36)

28

(32.) What is your best estimate of the percent of your professional time that you devote(d) to energy and fuel during a typical week?

1. ☐ 100 percent
2. ☐ 75 to 99 percent
3. ☐ 50 to 74 percent
4. ☐ 25 to 49 percent
5. ☐ 24 percent or less

29

(33.) From the list below, indicate the one energy source that involves(d) the largest proportion of your energy-related work during a typical week.

1. ☐ Coal and coal products
2. ☐ Petroleum (including oil shale and tar sands) or natural gas
3. ☐ Fission
4. ☐ Fusion
5. ☐ Hydroenergy
6. ☐ Direct solar (including space and water heating, thermal, electric)
7. ☐ Indirect solar (winds, tides, biomass, etc.)
8. ☐ Geothermal
9. ☐ Other, *specify:* ↘

_____

31

(34.) From the list of energy-related activities below indicate the item(s) that best describe the activity(ies) in which you were engaged during a typical week.
(MARK AS MANY AS APPLY)

1. ☐ Exploration
2. ☐ Extraction (gas, oil, mining)
3. ☐ Manufacture of energy-related components or products
4. ☐ Fuel processing (including refining and enriching)
5. ☐ Electric power generation
6. ☐ Transportation, transmission, distribution of fuel or energy
7. ☐ Energy storage
8. ☐ Energy utilization, management
9. ☐ Fuel reprocessing or disposal
10. ☐ Energy conservation
11. ☐ Environmental impact (health, economic, etc.)
12. ☐ Education, training
13. ☐ Other, *specify:* ↘

_____

35

(35.) From the list in question 34, enter the number of the activity that best describes the one in which you spend(t) most of your energy-related time.
(ENTER THE APPROPRIATE CODE NUMBER 01-13, FROM Q. 34)

☐☐

PART V. OTHER INFORMATION

46

(36.) During calendar year 1981, how many weeks:

a) did you work, including paid vacation, paid sick leave, and military service? _____

b) were you without a job, but looking for work; or on layoff from a job? _____

c) were you not working, not seeking work, and not on layoff from a job? _____

TOTAL = 52 weeks

52

(37.) How many years of professional work experience, including teaching, do you have?

_____ Year(s) or ☐ None

54

(38.) Since age 22, have you had any periods of at least one year's duration when you were neither employed, nor looking for work, nor attending school full-time?
(DO NOT INCLUDE TIME IN ARMED FORCES)

1. ☐ Yes, a total of _____ year(s).
2. ☐ No

56

(39.) Using the list on page 2, complete the following statement:

"Based on my total education and experience, I regard myself professionally as a (an).....

_____"

CODE: ☐☐☐